

MDS-EX880/MS717

SERVICE MANUAL

Self Diagnostics
Supported model



Photo: MDS-MS717

MDS-EX880/MS717 are the mini disc deck section in DHC-EX880MD/MD717.

AEP Model

UK Model

MDS-EX880

E Model

Tourist Model

MDS-MS717

U.S and foreign patents licensed from Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	HCD-MD515
MD Mechanism Type	MDM-C1C
Optical Pick-up Name	KMS-260A/J1N

SPECIFICATIONS

System	MiniDisc digital audio system
Laser	Semiconductor laser ($\lambda = 780 \text{ nm}$) Emission duration: continuous
Laser output	Max. $44.6 \mu\text{W}^*$ * This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.
Recording time	74 minutes max. (using MDW-74)
Sampling frequency	44.1 kHz
Frequency response	5 Hz to 20 kHz
MD OPTICAL DIGITAL IN (CD PLAYER, VIDEO 1, VIDEO 2 for MDS-EX880; CD PLAYER, CS/BS, LD/DVD for MDS-MS717)	
(Square optical connector jacks, rear panel)	
Dimensions (w/h/d) incl. projecting parts and controls:	Approx. 280 x 90 x 350 mm
Mass	Approx. 2.8 kg

Design and specifications are subject to change without notice.

MINI DISC DECK



SONY®

SELF DIAGNOSTIC FUNCTION

This set can display the error history using the self diagnostic function.

1. OPERATING THE ERROR HISTORY MODE

All operations are performed using the **◀◀ SELECTOR ▶▶** dial and **PROGRAM** button.

1. Enter the test mode. (*1)
 2. Turn the **◀◀ SELECTOR ▶▶** dial and display “ERR DP MODE”.
 3. Press the **ENTER/YES** button, therefor enter the error history mode and change the display “total rec”.
 4. Press the **MENU/NO** button, therefor end the error history mode and change the display “ERR DP MODE”.
- (*1) See the “SECTION 4 TEST MODE” (page 11) for detail of test mode.

2. OPERATING THE DISPLAYED HISTORIES

1. Turn the **◀◀ SELECTOR ▶▶** dial and change the display of error history contents.
2. Press the **PROGRAM** button and display error history function.
3. Press the **PROGRAM** button again and back the display of error history contents.

Table 1 shows the history items and description.

Table 1.

Display (History items)	Description
total rec	Recording time (total hours of laser high power. About 1/5 of actual recording time) is displayed with “r○○○○○○h”.
total play	Playing time (total hours of actual playing time. Pause is not counted) is displayed with “p○○○○○○h”.
retry err	Total retry counts of recording (r) and playing (p) are displayed with “r○○ p○○”.
total err	Total error count is displayed with “total ○○”.
err history	Errors from last one “00” up to previous 10th error “09” are displayed with “0○ E○○”. (*2) (To select error No., use ◀◀ SELECTOR ▶▶ dial.)
err refresh? err refresh (*3)	Press REC IT button, and “Complete!” is displayed and the error history are all erased.

(*2) For the description of each error, refer to Table 1-1.

(*3) If err refresh is performed, the error history data are all erased. Only when “OP Replacement” was executed, perform this operation to clear the error history data, otherwise, never perform this operation.

Table 1-1.

Display (error No./code)	Description
0○ E00	No error
0○ E01	Disc error PTOC does not read
0○ E02	Disc error UTOC does not read
0○ E03	Loading error
0○ E04	Address does not read
0○ E05	Out of FOK
0○ E06	Focus does not work
0○ E07	Retry of record
0○ E08	Record retry error
0○ E09	Retry of Playback
0○ E0A	Playback retry error

SECTION 1

SERVICING NOTES

TABLE OF CONTENTS

SELF DIAGNOSTIC FUNCTION	2
1. SERVICING NOTES	3
2. GENERAL	5
3. DISASSEMBLY	6
4. TEST MODE	11
5. ELECTRICAL ADJUSTMENTS	14
6. DIAGRAMS	
6-1. Block Diagram – MD SERVO Section –	19
6-2. Block Diagram – MAIN Section –	21
6-3. Printed Wiring Boards – BD Section –	24
6-4. Schematic Diagram – BD Section –	27
6-5. Schematic Diagram – MAIN Section –	32
6-6. Printed Wiring Board – MAIN Section –	37
6-7. Printed Wiring Boards – MOTOR/SENSOR Section –	39
6-8. Schematic Diagram – MOTOR/SENSOR Section –	41
6-9. Printed Wiring Boards – PANEL Section –	43
6-10. Schematic Diagram – PANEL Section –	45
6-11. IC Pin Function Description	55
7. EXPLODED VIEWS	65
8. ELECTRICAL PARTS LIST	70

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

The following caution label is located inside the unit.

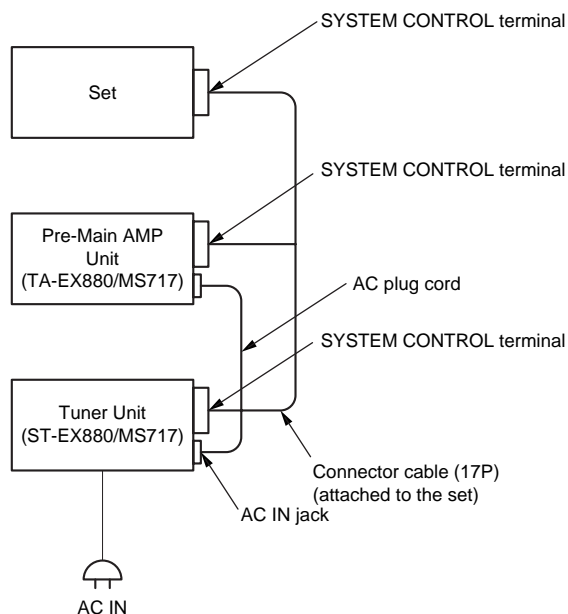
CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VORSICHT : UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET UND SICHERHEITSVERRIEGELUNG ÜBERBRÜCKT. NICHT DEM STRAHL AUSSETZEN.
VARO! : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING : OSYNLIG LASERSTRÅLING NÅR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRÄKTA EJ STRÅLEN.
ADVERSEL : USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.
VIGYAZAT! : A BURKOLAT NYITÁSAKOR LÁTHATATLAN LÉZERSUGÁRVESZÉLY! KERÜLJE A BESUGÁRZÁST!

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

POWER SUPPLY DURING SERVICING

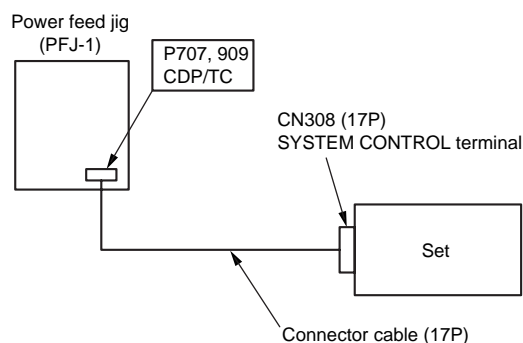
- As this set has not own power supply, it does not operate independently. Therefore, during servicing, connect it to the Pre-Main amplifier Unit (TA-EX880/MS717) of DHC-EX880MD/MD717. Also, connect the Tuner Unit (ST-EX880/MS717) because the POWER switch is not provided to the Pre-Main amplifier Unit (TA-EX880/MS717).



If TA-EX880/MS717 and ST-EX880/MS717 are not available, use the Power Feed Jig (PFJ-1).

In this case, turn on the POWER switch on the Power Feed Jig, then press **■** button and **DISPLAY** button on the set simultaneously, so that the power is supplied.

Connection:



AGING MODE

In the AGING mode, the MD operation can be checked.

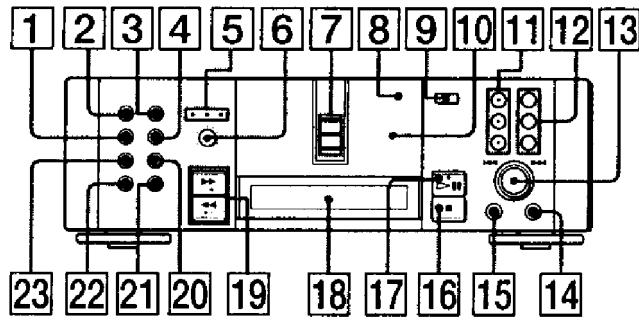
- If an error occurs:
The aging operation stops.
- If no error occurs:
The aging operation continues repeatedly.

- Operating Method for AGING Mode with the system power turned on, press the **POWER** button while pressing the **MENU/NO** button and **STEREO/MONO** button on the Tuner Unit (ST-EX880/MS717) simultaneously, so that the AGING mode becomes active.
To exit from the AGING mode, press the **POWER** button, and turn off the power.

SECTION 2 GENERAL

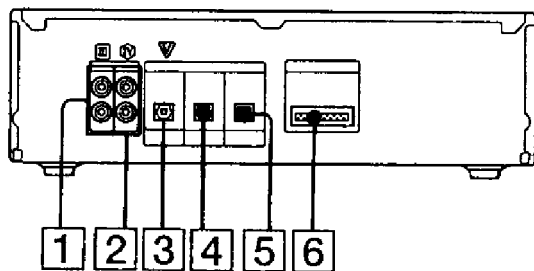
LOCATION OF CONTROLS

• Front view



- 1 SHUFFLE button
- 2 CONTINUE button
- 3 DISC SKIP button
- 4 REPEAT button
- 5 DIGITAL IN, ANALOG IN, MONO indicators
- 6 REC LEVEL knob
- 7 MD 1 to 3 indicators
- 8 Disc slots door (PUSH OPEN)
- 9 \triangle button
- 10 Disc slots
- 11 MD 1 to 3 buttons
- 12 REC 1 to 3 buttons
- 13 \ll SELECTOR \gg knob
- 14 ENTER/YES button
- 15 MENU/NO button
- 16 \blacksquare button
- 17 $\triangleright \parallel$ button
- 18 Fluorescent indicator tube
- 19 \ll , \leftarrow and \gg , \rightarrow buttons
- 20 REC IT button
- 21 CD SYNC button
- 22 DISPLAY button
- 23 PROGRAM button

• Rear view

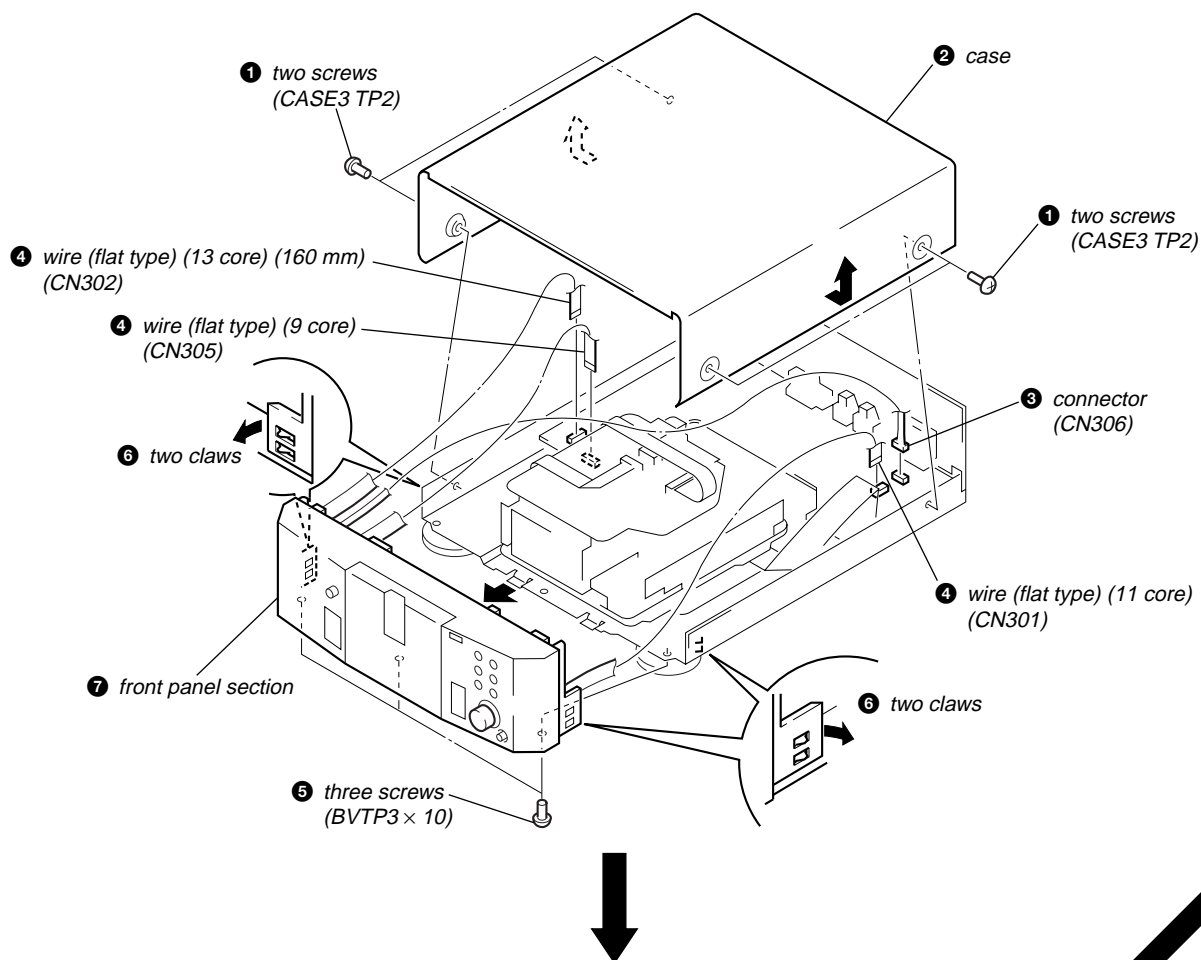


- 1 ANALOG IN terminal
- 2 ANALOG OUT terminal
- 3 OPTICAL DIGITAL IN, CD PLAYER terminal
- 4 OPTICAL DIGITAL IN, VIDEO 1 terminal (MDS-EX880)
- 4 OPTICAL DIGITAL IN, CS/BS terminal (MDS-MS717)
- 5 OPTICAL DIGITAL IN, VIDEO 2 terminal (MDS-EX880)
- 5 OPTICAL DIGITAL IN, LD/DVD terminal (MDS-MS717)
- 6 SYSTEM CONTROL terminal

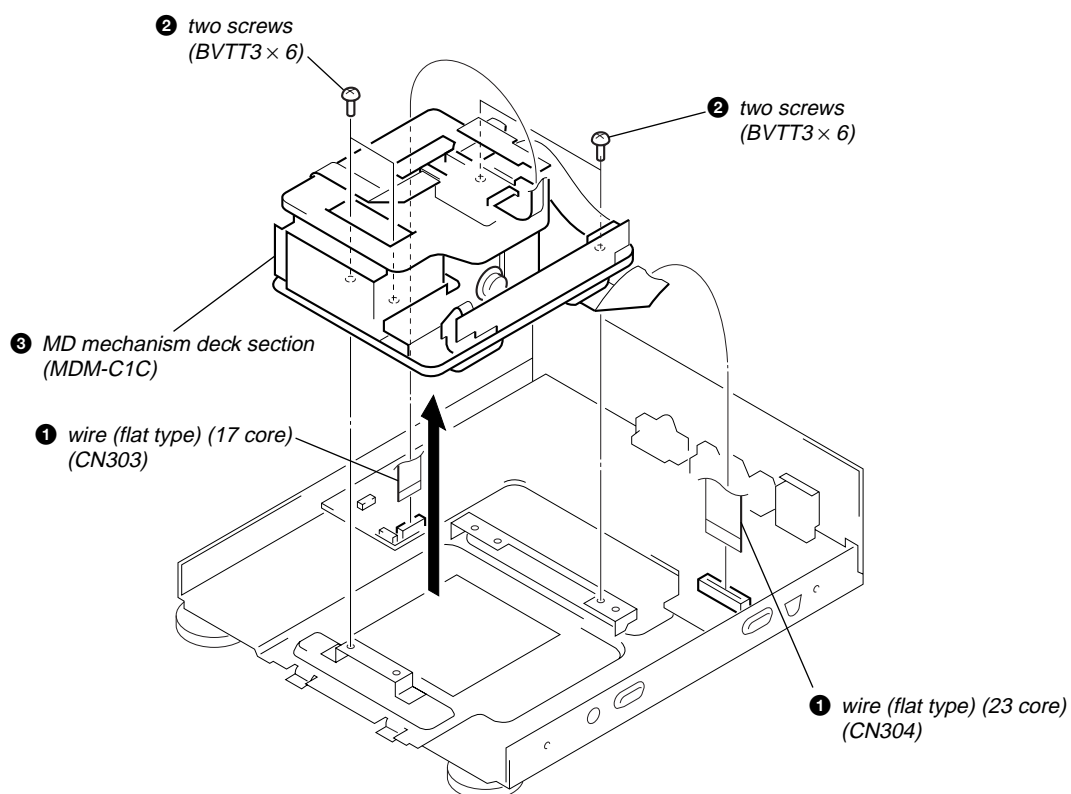
SECTION 3 DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

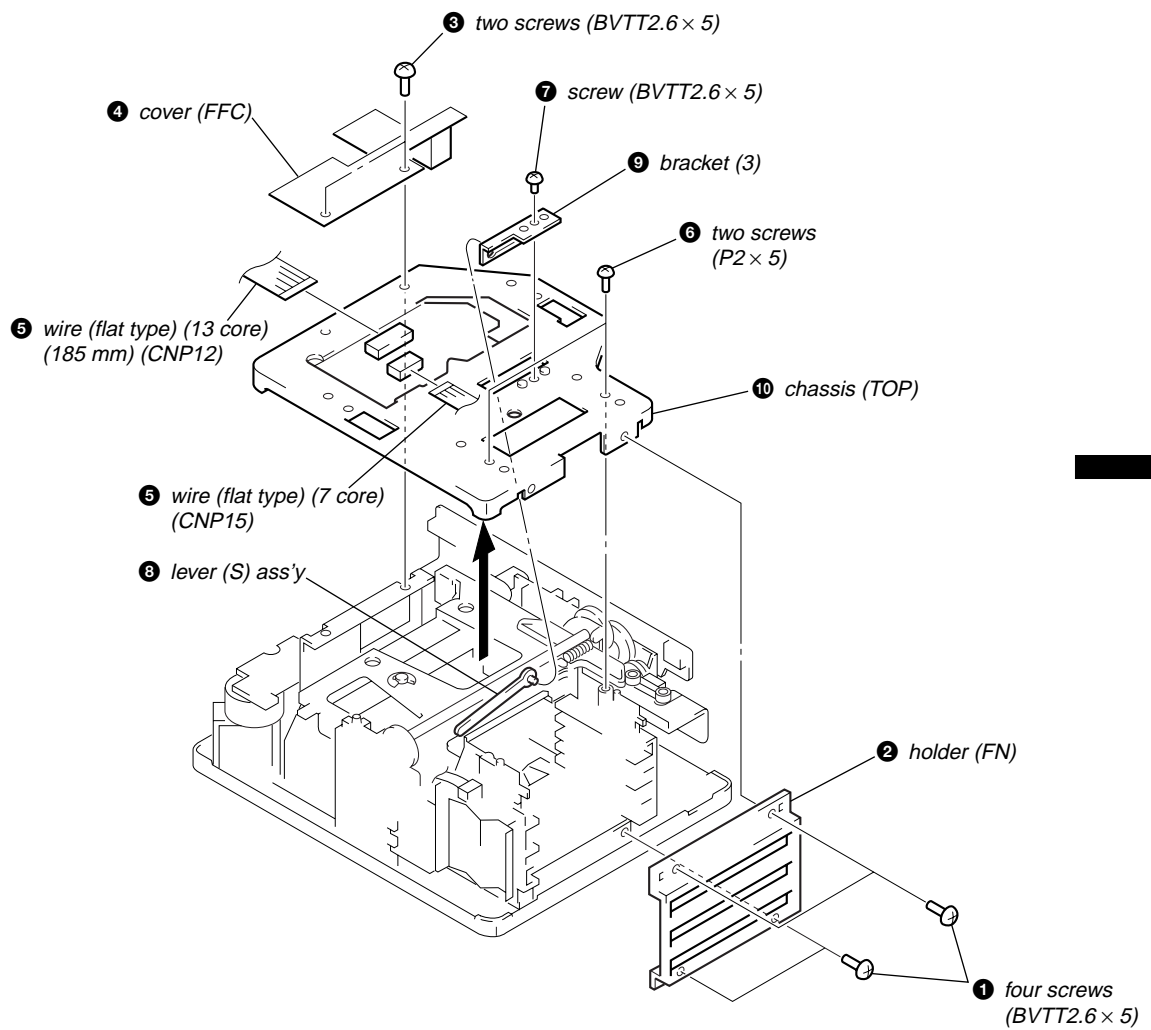
CASE, FRONT PANEL SECTION



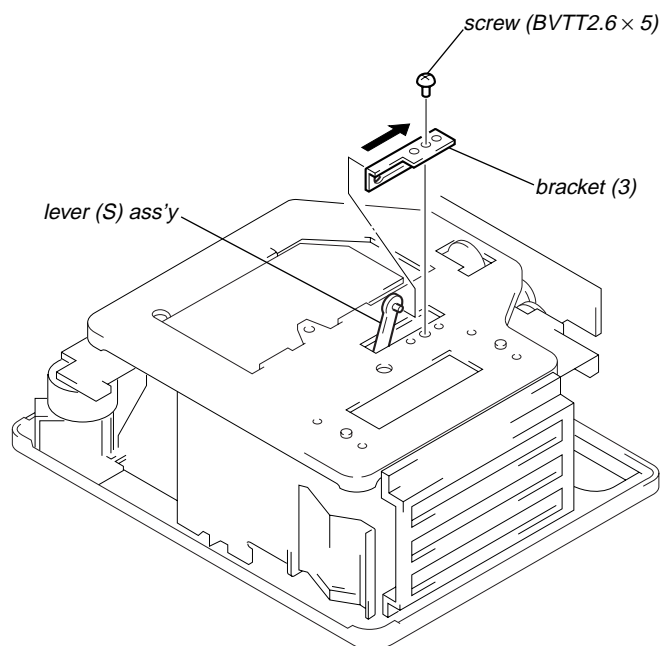
MD MECHANISM DECK SECTION (MDM-C1C)



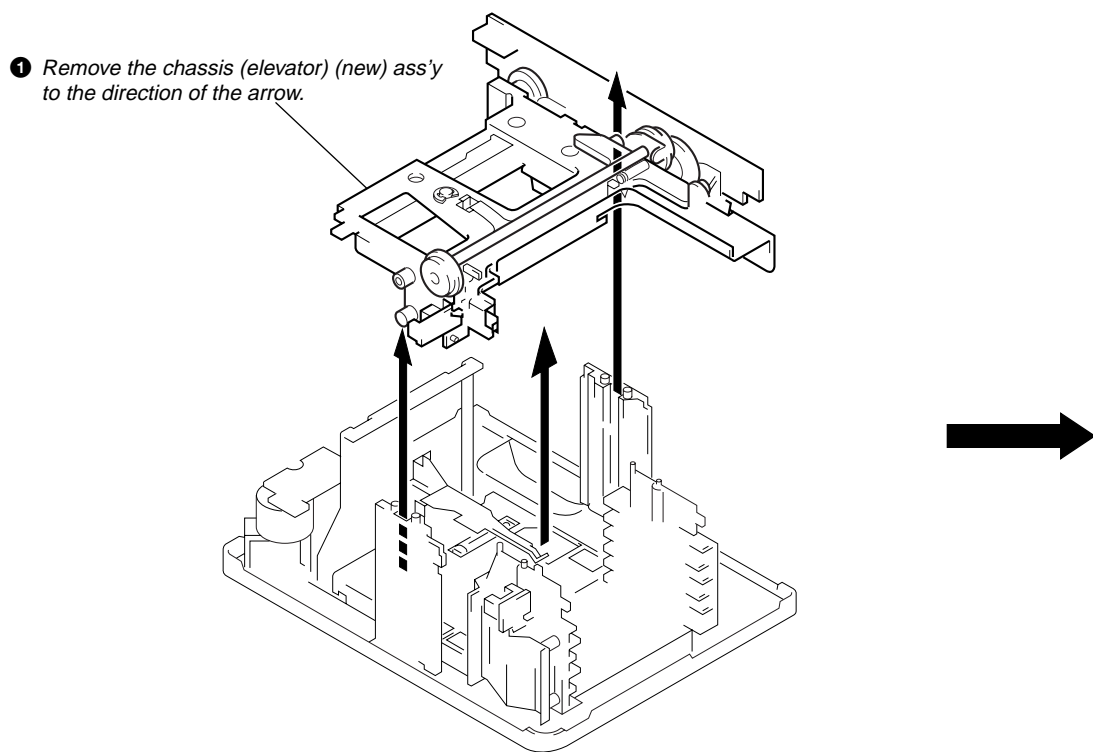
HOLDER (FN), CHASSIS (TOP)



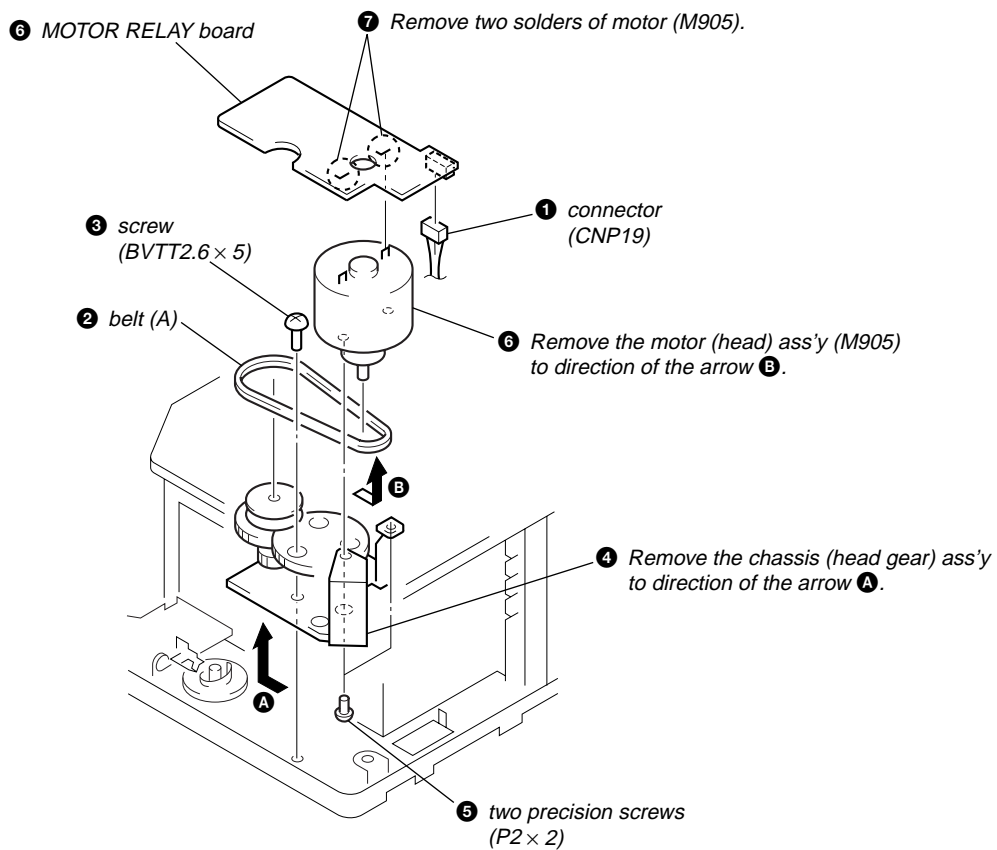
Note: Pull up the lever (S) ass'y and set to bracket (3), then slide them in the arrow direction.



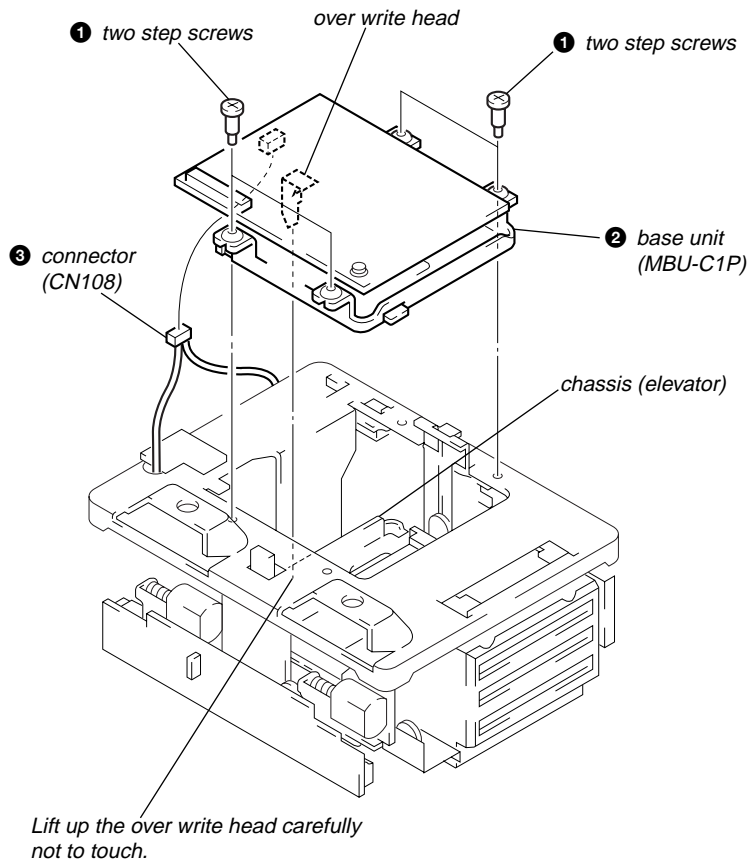
CHASSIS (ELEVATOR) (NEW) ASS'Y



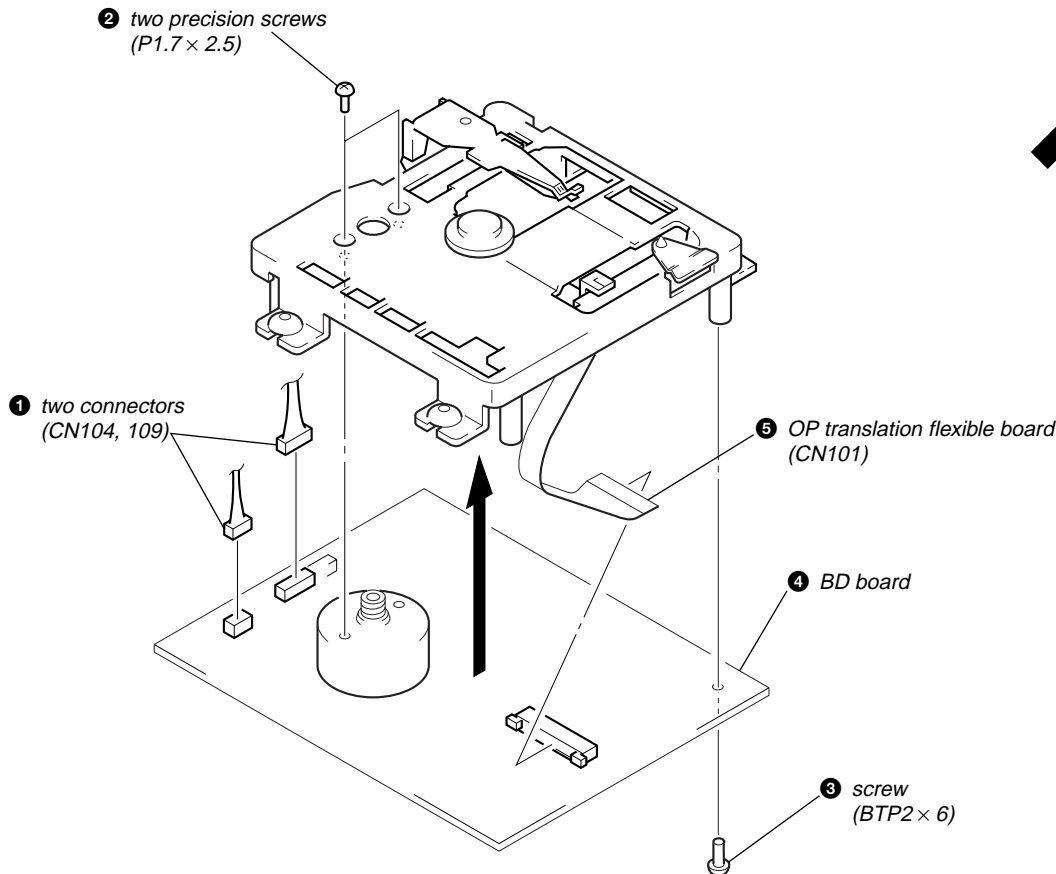
MOTOR (HEAD) ASS'Y (M905)



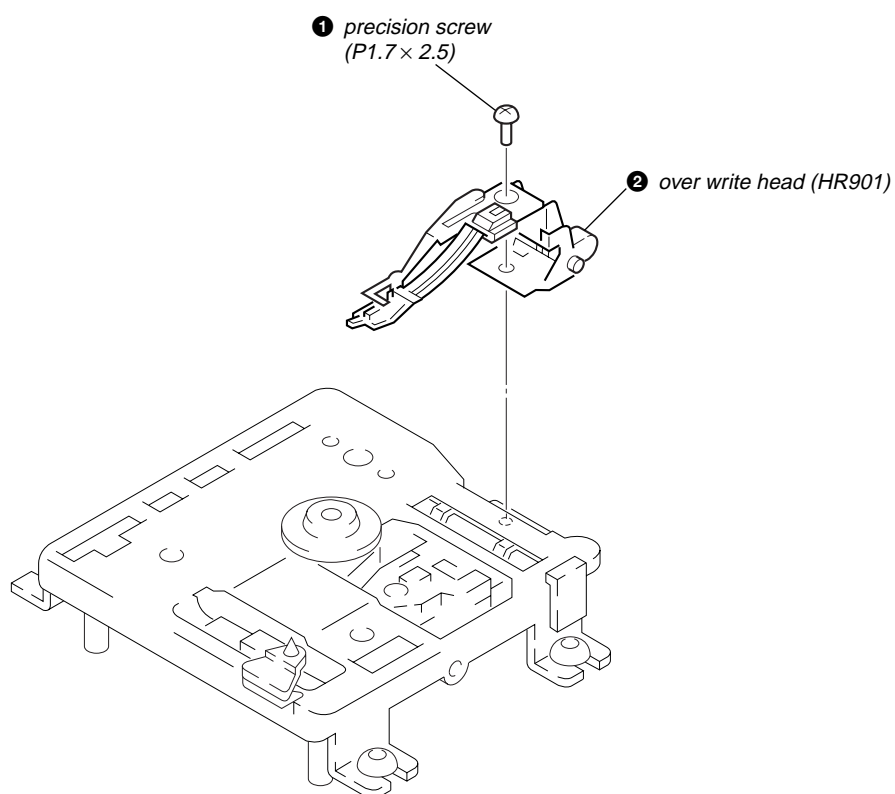
BASE UNIT SECTION (MBU-C1P)



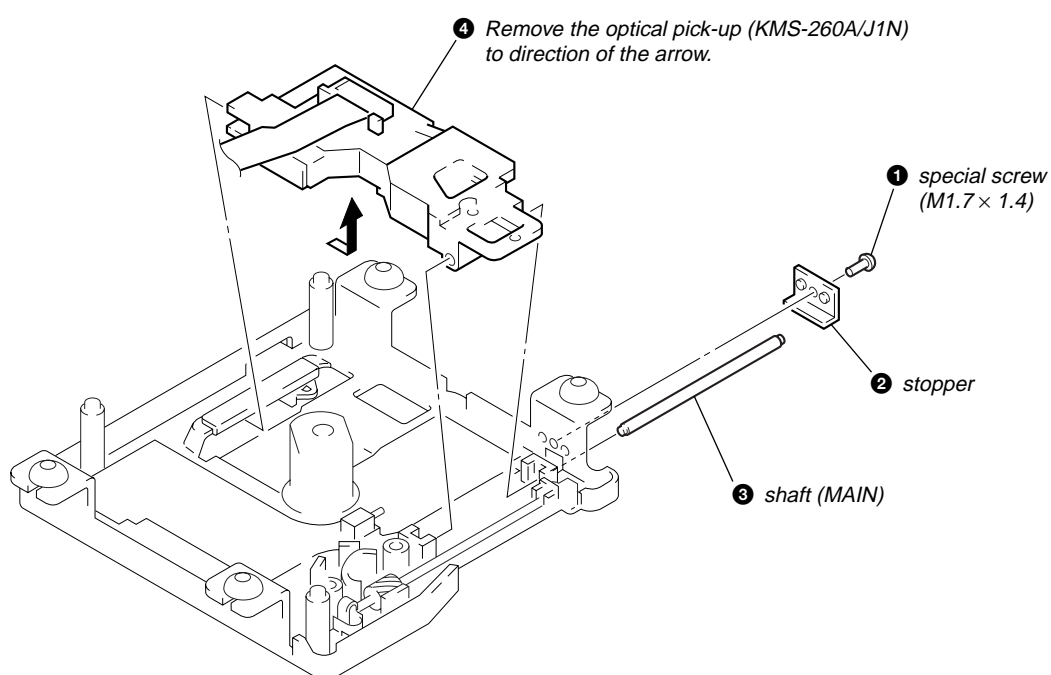
BD BOARD



OVER WRITE HEAD (HR901)



OPTICAL PICK-UP (KMS-260A/J1N)



SECTION 4 TEST MODE

1. PRECAUTIONS FOR USE OF TEST MODE

- The erasing-protection tab is not detected in the test mode. Therefore, operating in the recording laser emission mode and pressing the **[REC1]** button, the recorded contents will be erased regardless of the position of the tab. When using a disc that is not to be erased in the test mode, be careful not to enter the continuous recording mode and traverse adjustment mode. But “CREC MODE”, “EF MO CHECK” and “EF MO ADJUST” is detect the erasing-protection tab and recording laser power off.
- Using MD slot is “MD1” only.

1-1. Recording Laser Emission Mode and Operating Button

- Continuous recording mode (CREC MODE)
- Traverse adjustment mode (EF MO ADJUST)
- Laser power adjustment mode (LDPWR ADJUST)
- Laser power check mode (LDPWR CHECK)
- When pressing the **[REC1]** button.
- Traverse checking mode (EF MO CHECK)

2. SETTING THE TEST MODE

- Turn on the set, and select the MD function.
- Place the MD in “NO DISC” status (No disc present in stocker and inside of set)
- Press **[DISPLAY]** button, **[MD1]** button, and **[■]** button simultaneously to activate the Test mode.
When the Test mode is activated. “TEMP CHECK” is displayed on fluorescent indicator tube.

3. LOADING/UNLOADING A DISC IN TEST MODE

- In the Test mode, use the slot 1 only. (Do not load a disc in other slots.)
- When a disc is loaded in slot 1, in several seconds it will be automatically pulled in.
- To unload a disc, press **[△]** button.
- To load a disc again, press **[△]** button.
- In the Test mode, MD1, 2, 3 LEDs do not light regardless of whether a disc is present or not.

4. RELEASING THE TEST MODE

Press the **[REPEAT]** button, and the set returns to normal mode. (If **[REPEAT]** button is pressed with a disc loaded, the disc is automatically ejected.)

5. BASIC OPERATIONS OF THE TEST MODE

All operations are performed using the **[◀ SELECTOR ▶]** dial, **[ENTER/YES]** button, and **[MENU/NO]** button. The functions of these buttons and dial are as follows.

Table 1.

Button & dial	Function
[◀ SELECTOR ▶] dial	Changes parameters and modes.
[ENTER/YES] button	Proceeds onto the next step. Finalizes input.
[MENU/NO] button	Returns to previous step. Stops operations.

6. SELECTING THE TEST MODE

Twenty six test modes are selected by turn the

[◀ SELECTOR ▶] dial.

Table 2.

Display	Contents
TEMP CHECK	Temperature compensation offset check
LDPWR CHECK	Laser power check
EF MO CHECK	Traverse (E-F balance) check
EF CD CHECK	Travers (Pre mastered disk) check
FBIAS CHECK	Focus bias check
CPLAY MODE	Continuous playback mode
CREC MODE	Continuous recording mode
ScurveCHECK	S-curve check (*1)
VERIFYMODE	Non-volatile memory check (*1)
DETRK CHECK	Detrack check
TEMP ADJUST	Temperature compensation offset adjustment
LDPWR ADJUST	Laser power adjustment
EF MO ADJUST	Traverse (E-F balance) adjustment
EF CD ADJUST	Traverse (Pre mastered disk) adjustment
FBIAS ADJUST	Focus bias adjustment
EEP MODE	Non-volatile memory mode (*1)
MANUAL CMD	Manual command transfer mode (*1)
SVDATA READ	Data reading out mode (*1)
ERR DP MODE	Operation of error histories memory
SLED MOVE	Operation of sled motor (*1)
ACCESS MODE	Access check (*1)
0920 CHECK	Outermost periphery check (*1)
WRITE sure?	Non-volatile memory initialize (*1)
HEAD ADJUST	HEAD adjustment check (*1)
CPLAY2MODE	Continuous playback mode (*1)
CREC2MODE	Continuous recording mode (*1)

- For detailed description of each adjustment mode, refer to the “5. ELECTRICAL ADJUSTMENTS” (page 14).
- If a different adjustment mode has been selected by mistake, press the **[MENU/NO]** button to exit from it.

*1: Scurve CHECK, VERIFY CHECK, EEP MODE, MANUAL CMD, SVDATA READ, SLED MOVE, ACCESS MODE, 0920 CHECK, WRITE sure?, HEAD ADJUST, CPLAY2MODE, and CREC2MODE are not used in servicing. If set accidentally, press the **[MENU/NO]** button immediately to exit it.

7. OPERATING THE CONTINUOUS PLAYBACK MODE

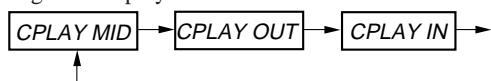
7-1. Entering the Continuous Playback Mode

1. Set the disc in the slot 1 of unit. (In several seconds it will be automatically pulled in.) (Whichever recordable discs or discs for playback only are available.)
2. Turn the **◀◀ SELECTOR ▶▶** dial and display “CPLAY MODE”.
3. Press the **ENTER/YES** button to change the display to “CPLAY MID”.
4. When access completes, the display changes to “C = 0000 AD = 00”.

Note: The numbers “0” displayed show you error rates and ADER.

7-2. Changing the Parts to be Played-back

1. Press the **ENTER/YES** button during continuous playback to change the display as below.



2. When access completes, the display changes to “C = 0000 AD = 00”.

Note: The numbers “0” displayed show you error rates and ADER.

7-3. Ending the Continuous Playback Mode

1. Press the **MENU/NO** button. The display will change to “CPLAY MODE”.
2. Press the **⏏** button and remove the disc. (To exit from the TEST mode, press the **REPEAT** button.)

Notes:

1. The playback start address for IN, MID, and OUT are as follows.
IN : 40h cluster
MID : 300h cluster
OUT : 700h cluster
In case you want to display the address of the playback position on the display, press the **DISPLAY** button and display “CPLAY (0000)”.
2. The **MENU/NO** button can be used to stop playing anytime.

8. OPERATING THE CONTINUOUS RECORDING MODE

8-1. Entering the Continuous Recording Mode

1. Set the MO disc in the slot 1 of unit. (Refer to [note 3.](#))
2. Turn the **◀◀ SELECTOR ▶▶** dial and display “CREC MODE”.
3. Press the **ENTER/YES** button to change the display to “CREC MID”.
4. When access completes, the display changes to “CREC (0000)” and **PROGRAM** LED lights up.

Note: The numbers “0” displayed shows you the recording position address.

8-2. Changing the Parts to be Recorded

1. When the **ENTER/YES** button is pressed during continuous recording, the display changes as below. (“PROGRAM” indication turns off during change-over of display.)



2. When access completes, the display changes to “CREC (0000)” and **PROGRAM** LED lights up.

Note: The numbers “0” displayed shows you the recording position address.

8-3. Ending the Continuous Recording Mode

1. Press the **MENU/NO** button. The display will change to “CREC MODE” and **PROGRAM** LED goes off.
2. Press the **⏏** button and remove the disc.

Notes:

1. The recording start address for IN, MID, and OUT are as follows.
IN : 40h cluster
MID : 300h cluster
OUT : 700h cluster
2. The **MENU/NO** button can be used to stop recording anytime.
3. During the test mode, the erasing-protection tab will not be detected. Therefore be careful not to set the continuous recording mode when a disc not to be erased is set in the unit.
4. Do not perform continuous recording for long periods of time above 5 minutes.
5. During continuous recording, be careful not to apply vibration.

9. EEP MODE

This mode reads and writes the contents of the non-volatile memory.

It is not used in servicing. If set accidentally, press the **MENU/NO** button immediately to exit it.

10. FUNCTIONS OF OTHER BUTTONS

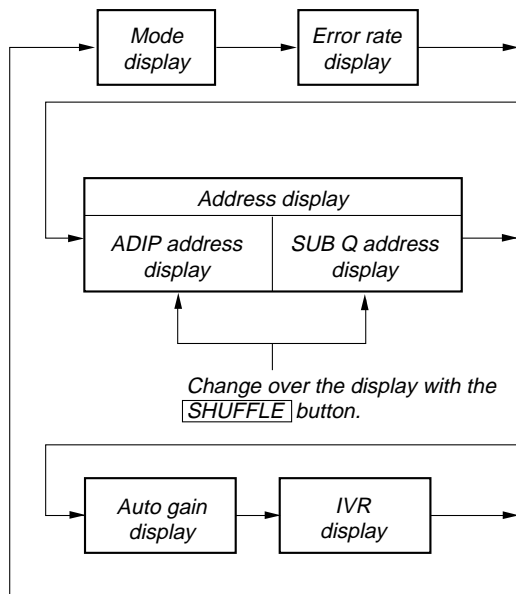
Table 3.

Button	Contents
	Sets continuous playback when pressed in the STOP state.(servo all on) When pressed during continuous playback, the tracking and sled servo turns on/off.
	Stop continuous playback and continuous recording. (servo all off)
	The sled moves to the outer circumference only when this is pressed.
	The sled moves to the inner circumference only when this is pressed.
REC1	Turns recording on/off when pressed during continuous playback.
SHUFFLE	Switches between the pit and groove modes when pressed.
CONTINUE	Switches between the CLV-S (pull-in mode) and CLV-A (playing servo) modes when preseed. (Switches the spindle servo mode.)
DISPLAY	Switches the display when pressed. Returns to previous step. Stop operations.
REPEAT	Releasing the test mode
	Disc eject

Note: The erasing-protection tab in not detected during the test mode.
Recording will start regardless of the position of the erasing-protection tab when the **[REC1]** button is pressed.

11. TEST MODE DISPLAYS

Each time the **[DISPLAY]** button pressed, the display changes in the following order.



Note: Auto gain display and IVR display are not used in servicing.

1. MODE display
Displays “TEMP ADJUST”, “CPLAY MODE”, etc..
2. Error rate display
Error rates are displayed as follows.
C = AD =
C = : Indicates C1 error
AD = : Indicates ADER
3. Address display
Address are displayed as follows.
h = a = (MO groove)
With this display, if **[SHUFFLE]** button is pressed, the following will be displayed.
h = s = (MO pit and CD)
h = : Header address
a = : ADIP address
s = : SUB Q address
Note: “—” is displayed when the address cannot be read.
4. Auto gain display
Auto gain are displayed as follows.
AG =
A = Focus servo gain coefficient
B = Tracking servo gain coefficient
C = [OK] or [NG] or [- -] (not converged)

12. MEANINGS OF OTHER DISPLAYS

Table 4.

Display	Contents		
	Light	Off	Blinking
CONTINUE LED	During continuous playback (servo all on)	Stop state (servo all off)	—
PROGRAM LED	Recording mode on	Recording mode off	—
DIGITAL IN LED	CLV lock state	CLV unlock state	—
ANALOG IN LED	Pit mode	Groove mode	—
MONO LED	High reflection rate disc	Low reflection rate disc	—
REC IT LED	Spindle servo CLV-S (pull-in mode)	Spindle servo CLV-A (playing mode)	—
CD SYNC LED	ABCD adjustment completed	Not adjustment	—
ALL1	Focus auto gain successful	—	Focus auto gain successful.
DISCS	Tracking auto gain successful	—	Tracking auto gain failed.

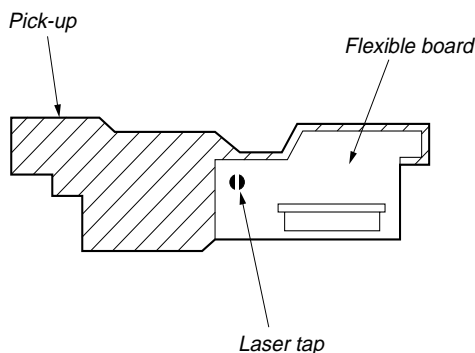
SECTION 5 ELECTRICAL ADJUSTMENTS

1. PRECAUTIONS FOR CHECKING LASER DIODE EMISSION

To check the emission of the laser diode during adjustments, never view directly from the top as this may lose your eyesight.

2. PRECAUTIONS FOR USE OF OPTICAL PICK-UP (KMS-260A)

As the laser diode in the optical pick-up is easily damaged by static electricity, solder the laser tap of the flexible board when using it. Before disconnecting the connector, desolder first. Before connecting the connector, be careful not to remove the solder. Also take adequate measures to prevent damage by static electricity. Handle the flexible board with care as it breaks easily.



Optical pick-up flexible board

3. PRECAUTIONS FOR ADJUSTMENTS

- 1) When replacing the following parts, perform the adjustments and checks with ○ in the order shown in the following table.

Table 1.

	Optical Pick-up	BD board		
		IC171	D101	IC101, IC121, IC192
1. Temperature compensation offset adjustment	×	○	○	○
2. Laser power adjustment	○	○	×	○
3. Traverse adjustment	○	○	×	○
4. Focus bias adjustment	○	○	×	○
5. Error rate check	○	○	×	○

- 2) Set the test mode when performing adjustments.
After completing the adjustments, exit the test mode.
- 3) Perform the adjustments in the order shown.
- 4) Use the following tools and measuring devices.
 - Test disc (CD for playback only) TDYS-1 (Parts No. 4-963-646-01)
 - Laser power meter LPM-8001 (Parts No. J-2501-046-A)
 - Oscilloscope (Measure after performing CAL of probe.)
 - Digital voltmeter
 - Thermometer
- 5) When observing several signals on the oscilloscope, etc., make sure that VC and ground do not connect inside the oscilloscope.
(VC and ground will become short-circuited)

4. CREATING MO CONTINUOUSLY RECORDED DISC

* This disc is used in focus bias adjustment and error rate check. The following describes how to create a MO continuous recording disc.

1. Insert a MO disc (blank disc) commercially available to slot 1.
2. Turn the **◀ SELECTOR ▶** dial and display "CREC MODE".
3. Press the **ENTER/YES** button and display "CREC MID". "CREC (0300)" is displayed for a moment and recording starts.
4. Complete recording within 5 minutes.
5. Press the **MENU/NO** button and stop recording.
6. Press the **⏏** button and remove the MO disc.
(To exit from the TEST mode, press the **REPEAT** button.)

The above has been how to create a continuous recording data for the focus bias adjustment and error rate check.

Note: Be careful not to apply vibration during continuous recording.

5. TEMPERATURE COMPENSATION OFFSET ADJUSTMENT

Save the temperature data at that time in the non-volatile memory as 25°C reference data.

Notes:

1. Usually, do not perform this adjustment.
2. Perform this adjustment in an ambient temperature of 22 °C to 28 °C. Perform it immediately after the power is turned on when the internal temperature of the unit is the same as the ambient temperature of 22 °C to 28 °C.
3. When D101 has been replaced, perform this adjustment after the temperature of this part has become the ambient temperature.

Adjusting Method:

1. Turn the **◀◀ SELECTOR ▶▶** dial and display “TEMP ADJUST”.
2. Press the **ENTER/YES** button and select the “TEMP ADJUST” mode.
3. “TEMP = **□□**” and the current temperature a data will be displayed.
4. To save the data, press the **ENTER/YES** button.
When not saving the data, press the **MENU/NO** button.
5. When the **ENTER/YES** button is pressed, “TEMP = **□□** SAVE” will be displayed for some time, followed by “TEMP ADJUST”.
When the **MENU/NO** button is pressed, “TEMP ADJUST” will be displayed immediately.

Specifications:

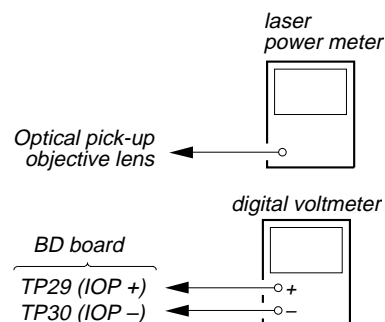
The temperature should be within “E0-EF”, “F0-FF”, “00-0F”, “10-1F” and “20-2F”.

6. LASER POWER ADJUSTMENT

Preparation:

Referring to “3. Disassembly”, remove the Base Unit from MD Mechanism Deck.

Connection:



Adjusting Method:

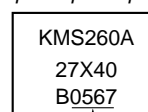
1. Set the laser power meter on the objective lens of the optical pick-up. (When it cannot be set properly, press the **▶▶** button or **◀◀** button and move the optical pick-up.)
Connect the digital voltmeter to TP29 (IOP+) and TP30 (IOP-) of the BD board.
 2. Turn the **◀◀ SELECTOR ▶▶** dial and display “LDPWR ADJUST”.
(Laser power: for adjustment)
 3. Press the **ENTER/YES** button and display “LD 0.9 mW \$ **□□**”.
 4. Turn the **◀◀ SELECTOR ▶▶** dial so that the reading of the laser power meter becomes 0.82 to 0.93 mW.
Set the range control on the laser power meter to 10 mW, then press the **ENTER/YES** button to save the adjustment result in the non-volatile memory.
(“LD SAVE \$ **□□**” will be displayed for a moment.)
 5. Then “LD 7.0 mW \$ **□□**” will be displayed.
 6. Turn the **◀◀ SELECTOR ▶▶** dial so that the reading of the laser power meter becomes 6.9 to 7.1 mW, press the **ENTER/YES** button and save the adjustment result in the nonvolatile memory.
(“LD SAVE \$ **□□**” will be displayed for a moment.)
- Note:** Do not perform the emission with 7.0 mW more than 15 seconds continuously.
7. Turn the **◀◀ SELECTOR ▶▶** dial and display “LDPWR CHECK”.
 8. Press the **ENTER/YES** button and display “LD 0.9 mW \$ **□□**”. Check that the reading of the laser power meter becomes 0.80 to 0.96 mW.
 9. Press the **ENTER/YES** button and display “LD 7.0 mW \$ **□□**”. Check that the reading of the laser power meter and digital voltmeter satisfy the specified value.

Specification:

Laser power meter reading: 7.0 ± 0.2 mW

Digital voltmeter reading : Optical pick-up displayed value $\pm 10\%$

(Optical pick-up label)



IOP=56.7 mA in this case

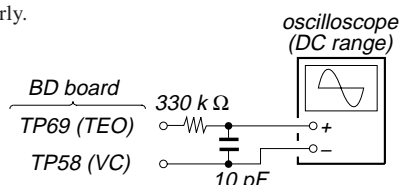
$IOP (mA) = \text{Digital voltmeter reading (mV)} / 1 (\Omega)$

10. Press the **MENU/NO** button and display “LDPWR CHECK”, and stop the laser emission.
(The **MENU/NO** button is effective at all times to stop the laser emission.)

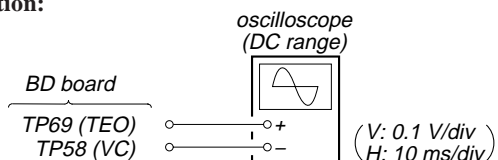
7. TRAVERSE (E-F BALANCE) ADJUSTMENT

Note 1: Data will be erased during MO reading if a recorded disc is used in this adjustment.

Note 2: If the traverse waveform is not clear, connect the oscilloscope as shown in the following figure so that it can be seen more clearly.



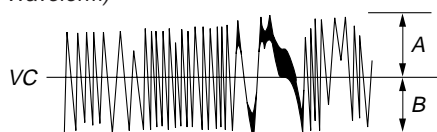
Connection:



Adjusting Method:

1. Connect an oscilloscope to TP69 (TEO) and TP58 (VC) of the BD board.
2. Load a MO disc (any available on the market) to slot 1. (Refer to [note 1](#).)
3. Press the **▶▶** button and move the optical pick-up outside the pit.
4. Turn the **◀◀ SELECTOR ▶▶** dial and display "EFMO ADJUST".
5. Press the **ENTER/YES** button and display "EFB = MO-R".
(Laser power READ power/Focus servo ON/tracking servo OFF/spindle (S) servo ON)
6. Turn the **◀◀ SELECTOR ▶▶** dial so that the waveforms of the oscilloscope becomes the specified value. (When the **◀◀ SELECTOR ▶▶** dial is turned, the "" of "EFB = MO-R" changes and the waveform changes.)
In this adjustment, waveform varies at intervals of approx. 2%.
Adjust the waveform so that the specified value is satisfied as much as possible.
(MO read power traverse adjustment)

(Traverse Waveform)

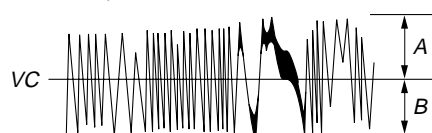


specification: A=B

7. Press the **ENTER/YES** button, and save the result of adjustment to the non-volatile memory.
("EFB = SAVE" will be displayed for a moment. Then "EFB = MO-W" will be displayed.)

8. Turn the **◀◀ SELECTOR ▶▶** dial so that the waveforms of the oscilloscope becomes the specified value. (When the **◀◀ SELECTOR ▶▶** dial is turned, the "" of "EFB = MO-W" changes and the waveform changes.)
In this adjustment, waveform varies at intervals of approx. 2%.
Adjust the waveform so that the specified value is satisfied as much as possible.
(MO write power traverse adjustment)

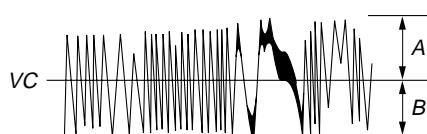
(Traverse Waveform)



specification: A=B

9. Press the **ENTER/YES** button, and save the result of adjustment to the non-volatile memory.
("EFB = SAVE" will be displayed for a moment. Then "EFB = MO-P" will be displayed.)
10. The optical pick-up moves to the pit area automatically and servo is imposed.
11. Turn the **◀◀ SELECTOR ▶▶** dial until the waveforms of the oscilloscope moves closer to the specified value.
In this adjustment, waveform varies at intervals of approx. 2%.
Adjust the waveform so that the specified value is satisfied as much as possible.

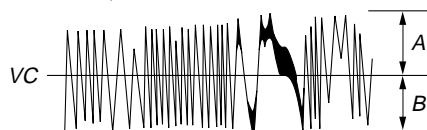
(Traverse Waveform)



specification: A=B

12. Press the **ENTER/YES** button, and save the result of adjustment to the non-volatile memory.
("EFB = SAVE" will be displayed for a moment. Then "EF MO ADJUST" will be displayed.)
The disc stops rotating automatically.
13. Press the **REPEAT** button and remove the MO disc.
14. Set the test mode again and load the test disc TDYS-1 to slot 1.
15. Turn the **◀◀ SELECTOR ▶▶** dial and display "EF CD ADJUST".
16. Press the **ENTER/YES** button and display "EFB = CD".
Servo is imposed automatically.
17. Turn the **◀◀ SELECTOR ▶▶** dial until the waveforms of the oscilloscope moves closer to the specified value.
In this adjustment, waveform varies at intervals of approx. 2%.
Adjust the waveform so that the specified value is satisfied as much as possible.

(Traverse Waveform)



specification: A=B

18. Press the **ENTER/YES** button, and save the result of adjustment to the non-volatile memory.
("EFB = SAVE" will be displayed for a moment. Then "EF CD ADJUST" will be displayed.)
19. Press the **⏏** button and remove the test disc TDYS-1.

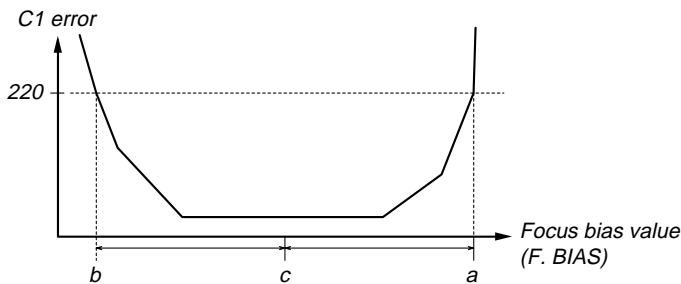
8. FOCUS BIAS ADJUSTMENT

Adjusting Method:

1. Load a continuously recorded disc (Refer to “4. Creating MO Continuously Recorded Disc”) to slot 1.
2. Turn the **◀◀ SELECTOR ▶▶** dial and display “CPLAY MODE”.
3. Press the **ENTER/YES** button and display “CPLAY MID”.
4. Press the **MENU/NO** button when “C = AD = / a = ”.
The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [a=] indicate the focus bias value.
7. Turn right the **◀◀ SELECTOR ▶▶** dial and find the focus bias value at which the C1 error rate becomes 220. (Refer to [note 2](#).)
8. Press the **ENTER/YES** button and display “/ b = ”.
9. Turn left the **◀◀ SELECTOR ▶▶** dial and find the focus bias value at which the C1 error rate becomes 220. (Refer to [note 2](#).)
10. Press the **ENTER/YES** button and display “/ c = ”.
11. Check that the C1 error rate is below 50 and ADER is 00. Then press the **ENTER/YES** button.
12. If the “(00)” in “-- (00)” is above 20, press the **ENTER/YES** button.
If below 20, press the **MENU/NO** button and repeat the adjustment from step 2 again.
13. Press the **REPEAT** button and press the **⏏** button to remove the continuously recorded disc.

Note 1: The relation between the C1 error and focus bias is as shown in the following figure. Find points a and b in the following figure using the above adjustment. The focal point position c is automatically calculated from points a and b.

Note 2: As the C1 error rate changes, perform the adjustment using the average value.



9. ERROR RATE CHECK

9-1. CD Error Rate Check

Checking Method:

1. Load a test disc TDYS-1 to slot 1.
2. Turn the **◀◀ SELECTOR ▶▶** dial and display “CPLAY MODE”.
3. Press the **ENTER/YES** button and display “CPLAY MID”.
4. “C = AD =

9-2. MO Error Rate Check

Checking Method:

1. Load a continuously recorded disc (Refer to “4. Creating MO Continuously Recorded Disc”) to slot 1.
2. Turn the **◀◀ SELECTOR ▶▶** dial and display “CPLAY MODE”.
3. Press the **ENTER/YES** button and display “CPLAY MID”.
4. “C = AD =

10. FOCUS BIAS CHECK

Change the focus bias and check the focus tolerance amount.

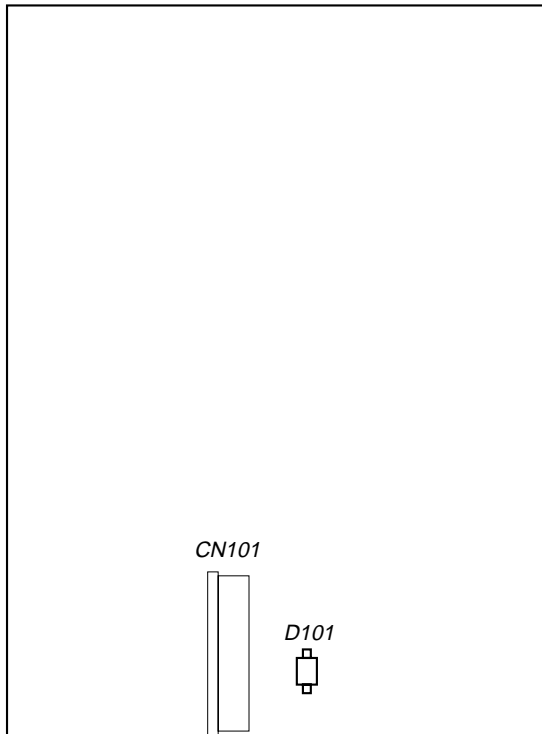
Checking Method:

1. Load a continuously recorded disc (Refer to “4. Creating MO Continuously Recorded Disc”).
2. Turn the **◀◀ SELECTOR ▶▶** dial and display “CPLAY MODE”.
3. Press the **ENTER/YES** button and display “CPLAY MID”.
4. Press the **MENU/NO** button when “C = AD = / c = ”.
The first four digits indicate the C1 error rate, the two digits after [/] indicate ADER, and the 2 digits after [c=] indicate the focus bias value.
Check that the C1 error is below 50 and ADER is 02.
7. Press the **ENTER/YES** button and display “/ b = ”.
Check that the C1 error is not below 220 and ADER is not above 02 every time.
8. Press the **ENTER/YES** button and display “/ a = ”.
Check that the C1 error is not below 220 and ADER is not above 02 every time.
9. Press the **MENU/NO** button, next press the **⏏** button, and remove the continuously recorded disc.

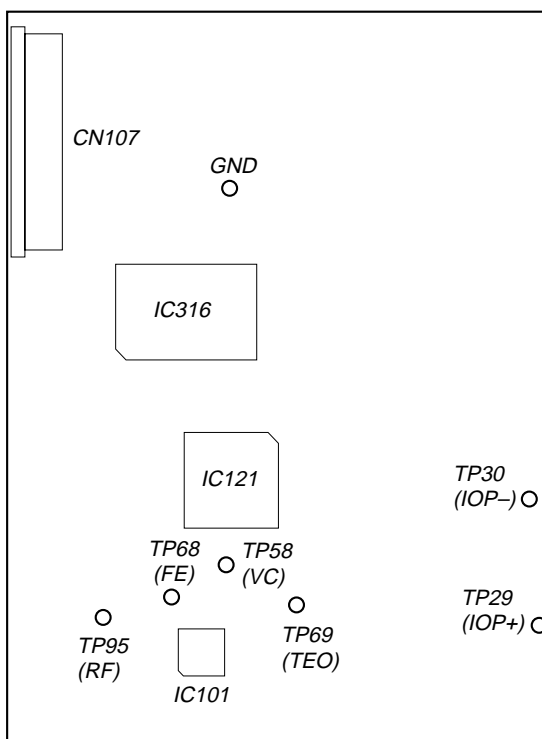
Note 1: If the C1 error and ADER are above 02 at points a or b, the focus bias adjustment may not have been carried out properly. Adjust perform the beginning again.

11. ADJUSTING POINTS AND CONNECTING POINTS

[BD BOARD] – SIDE A –

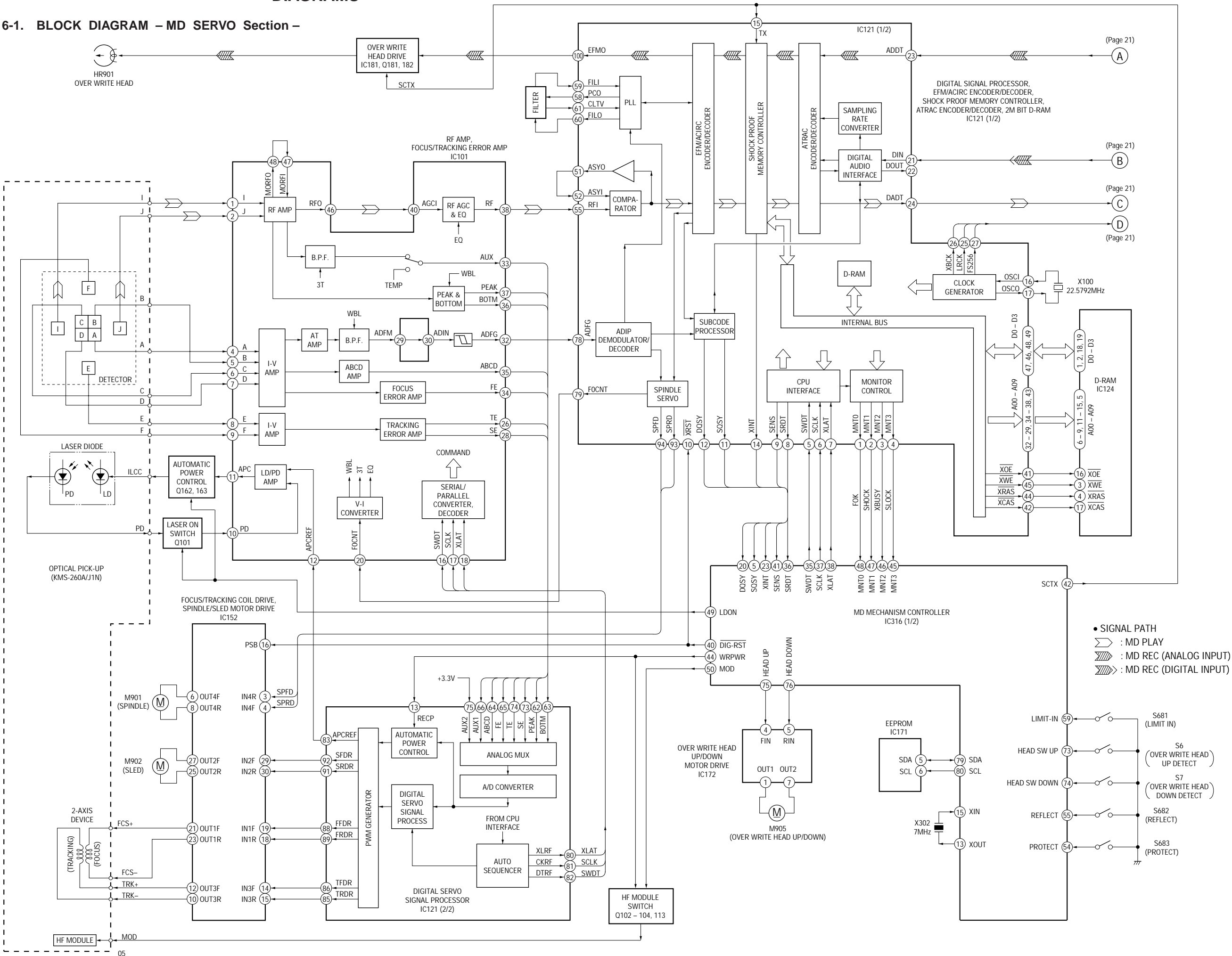


[BD BOARD] – SIDE B –



SECTION 6
DIAGRAMS

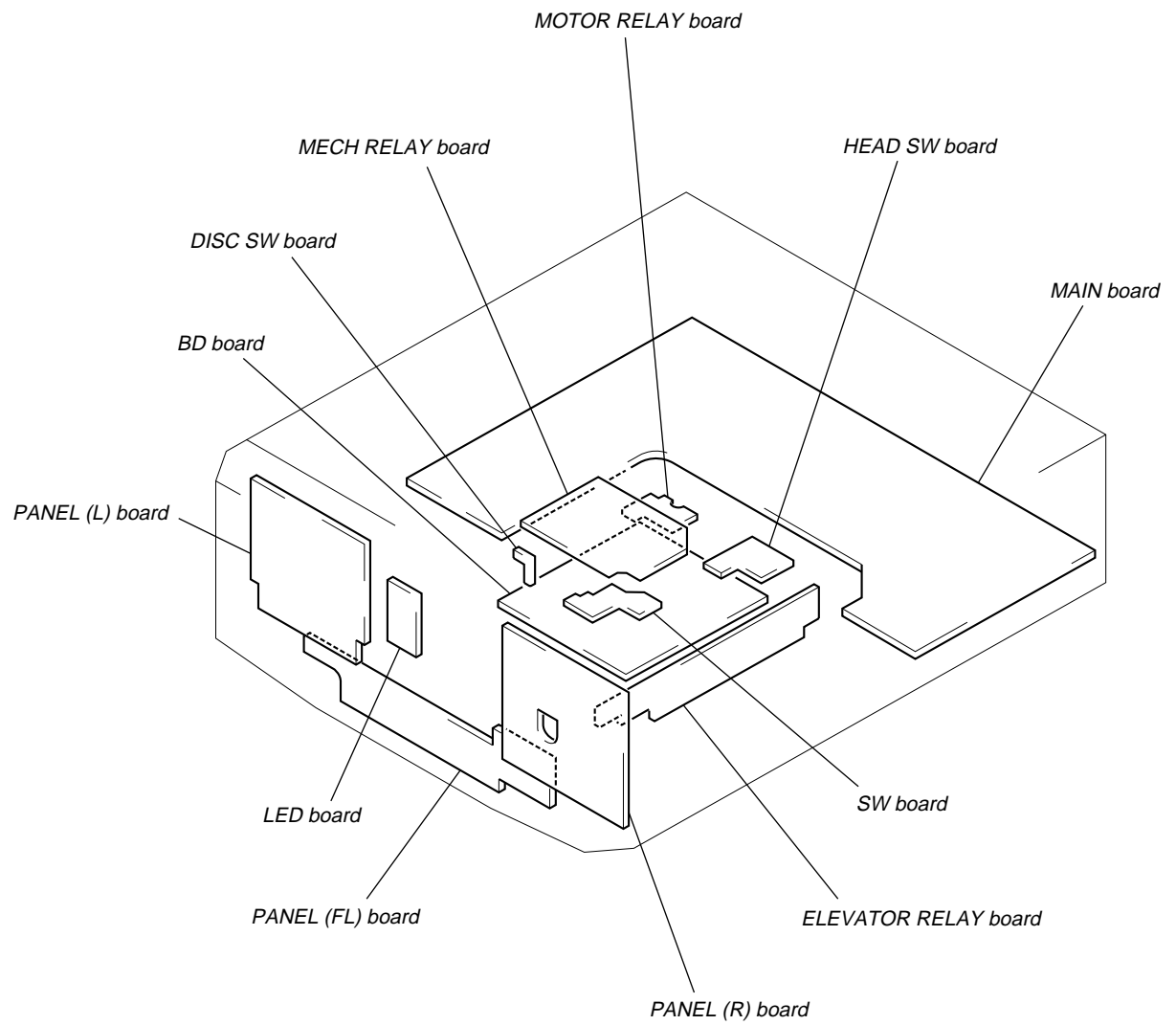
6-1. BLOCK DIAGRAM – MD SERVO Section –



(Page 20)

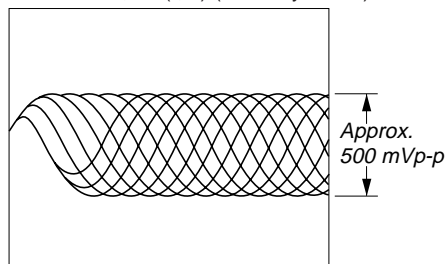


• **Circuit Boards Location**

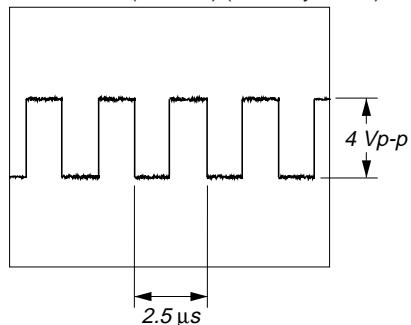


• Waveforms
– BD Board –

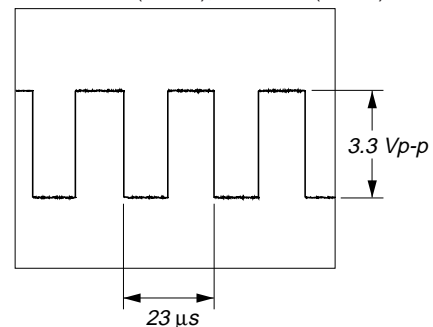
① IC101 ①, ② (I, J) (MD Play Mode)



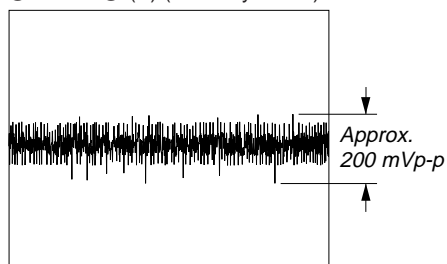
⑤ IC152 ③② (CAPA –) (MD Play Mode)



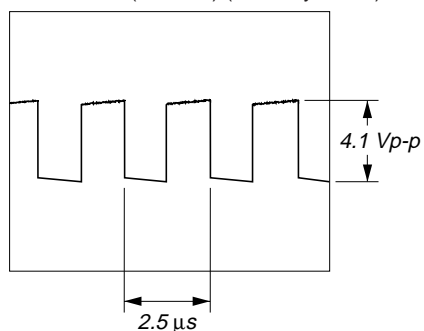
⑨ IC121 ②⑤ (LRCK), IC201 ①① (LRCK)



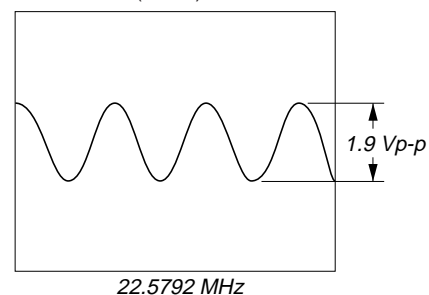
② IC101 ④ (A) (MD Play Mode)



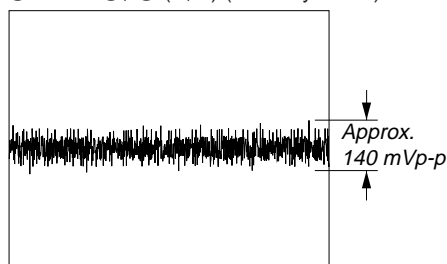
⑥ IC152 ③① (CAPA +) (MD Play Mode)



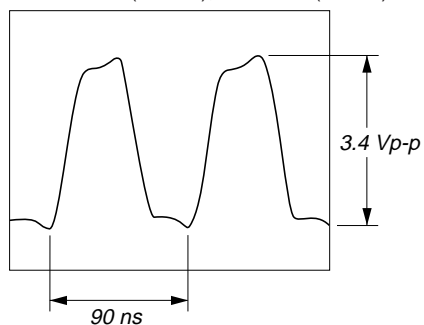
⑩ IC121 ①⑥ (OSCI)



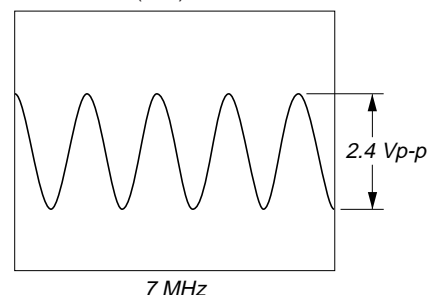
③ IC101 ⑧, ⑨ (E, F) (MD Play Mode)



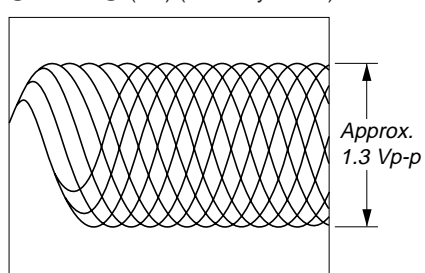
⑦ IC121 ②⑦ (FS256), IC201 ①⑤ (MCLK)



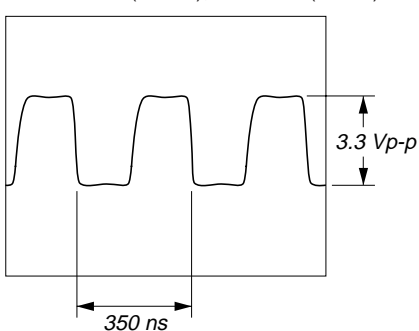
⑪ IC316 ①⑤ (XIN)



④ IC101 ③⑧ (RF) (MD Play Mode)

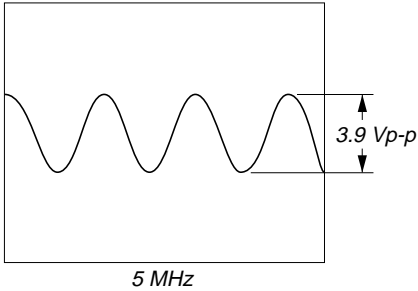


⑧ IC121 ②⑥ (XBCK), IC201 ①② (SCLK)



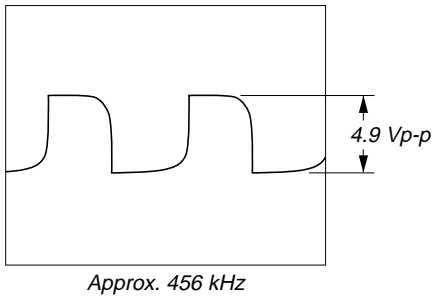
– MAIN Board –

① IC305 ⑪ (X1)

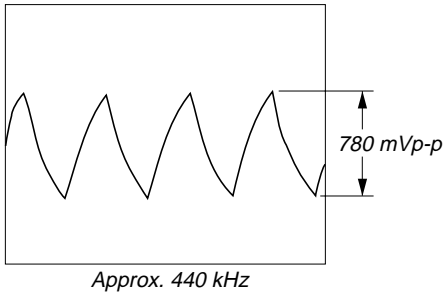


– PANEL Board –

① IC701 ⑳ (XOUT)

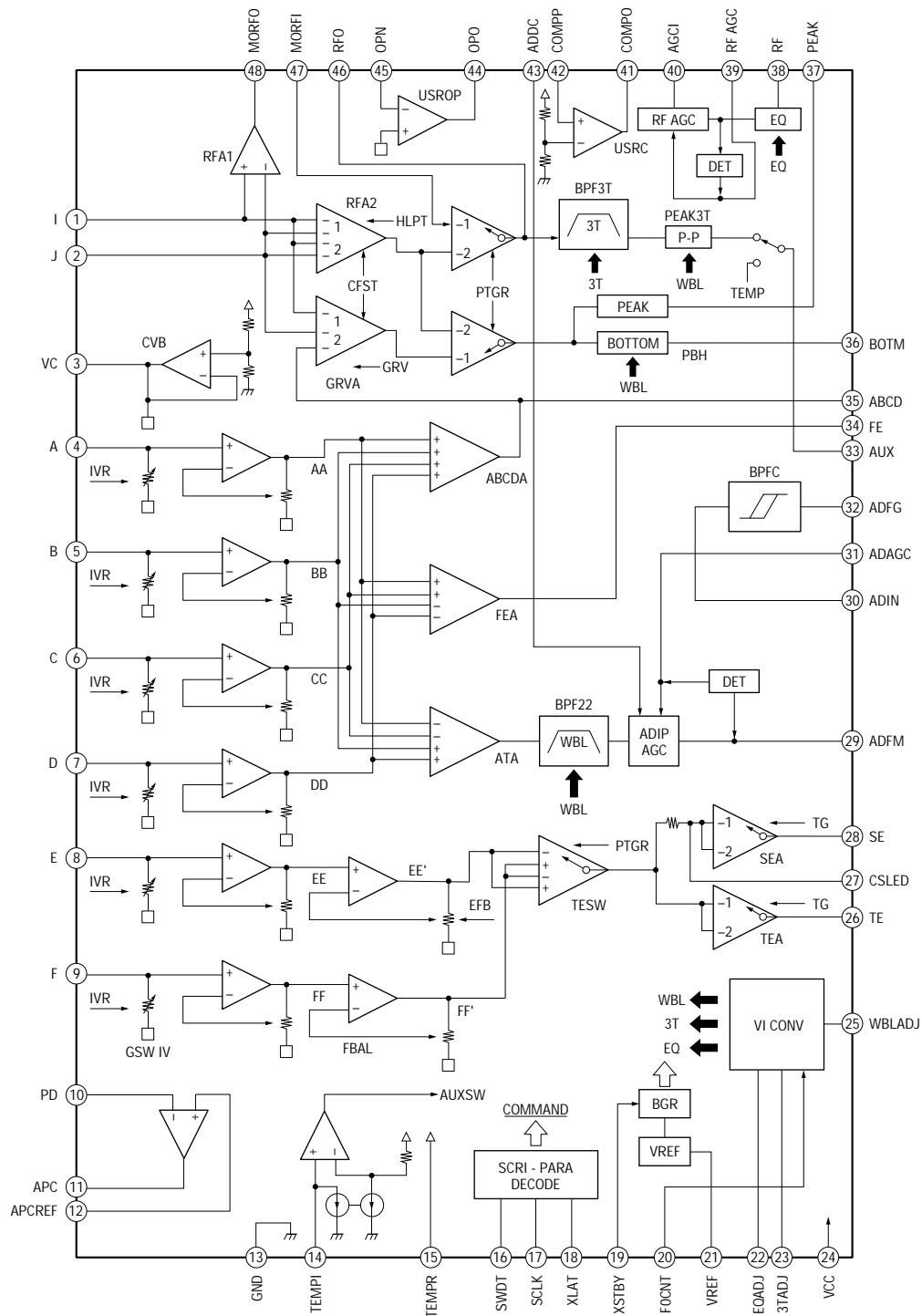


② IC701 ㉑ (XIN)

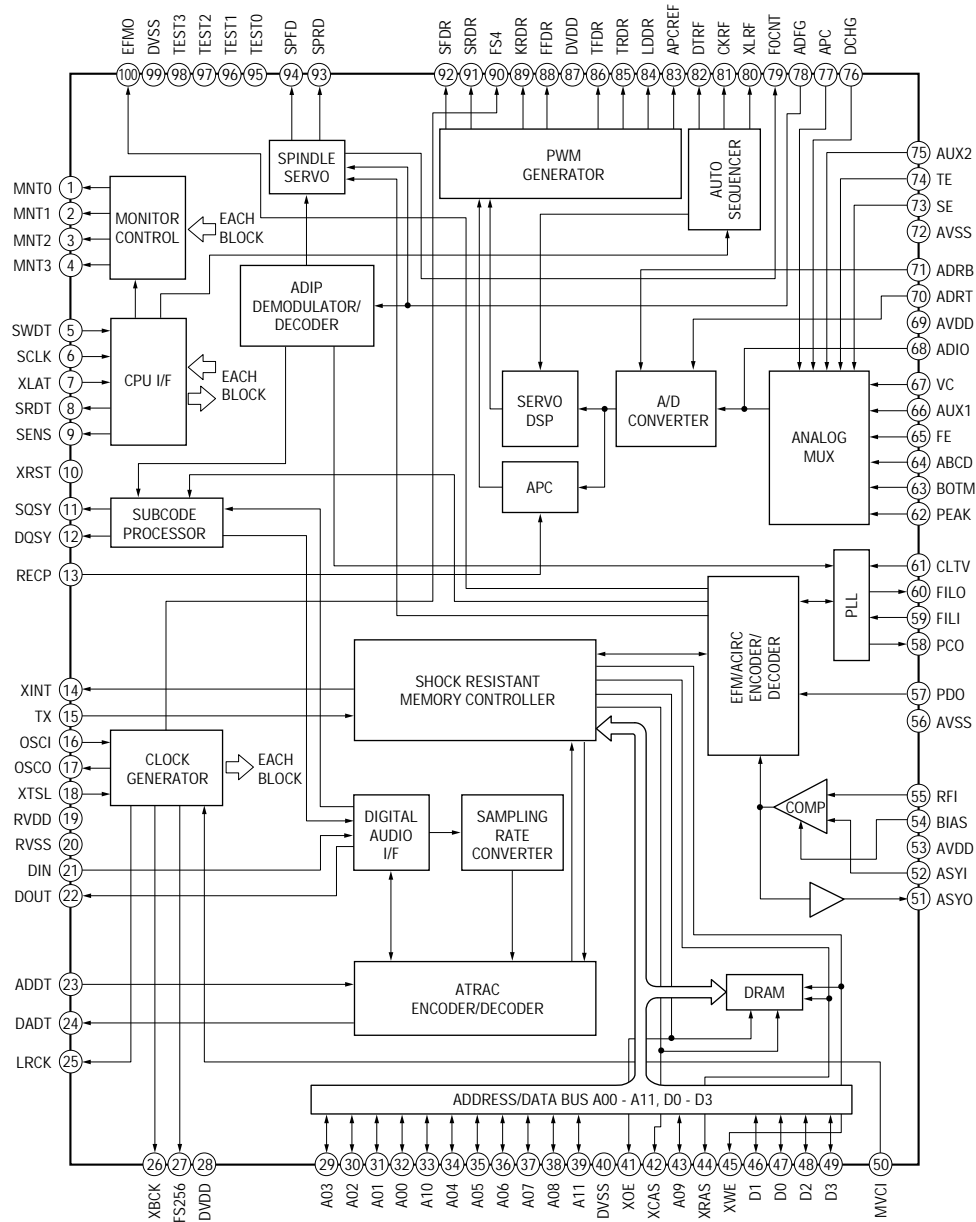


• IC Block Diagrams
– BD Board –

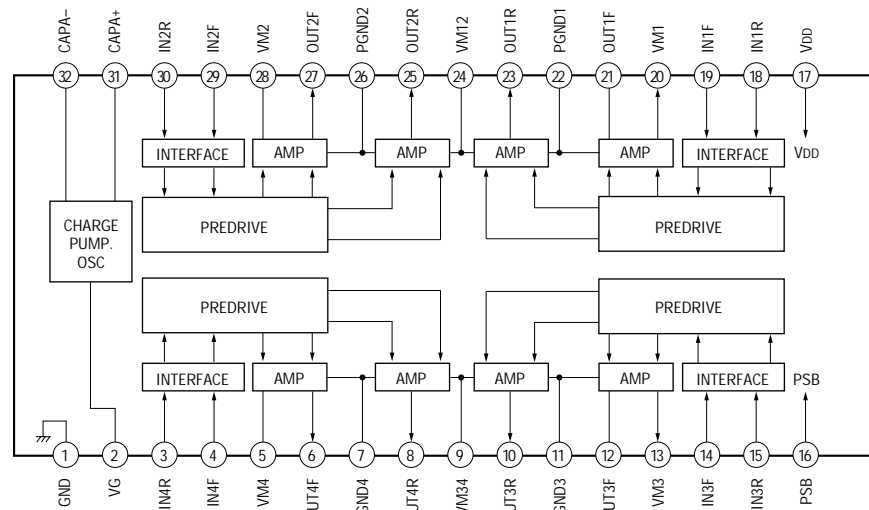
IC101 CXA2523AR



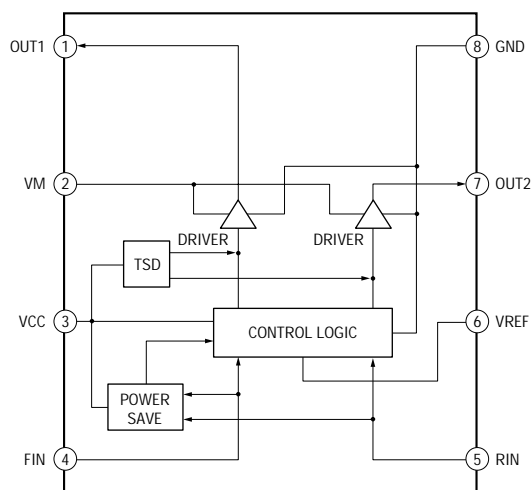
IC121 CXD2652AR



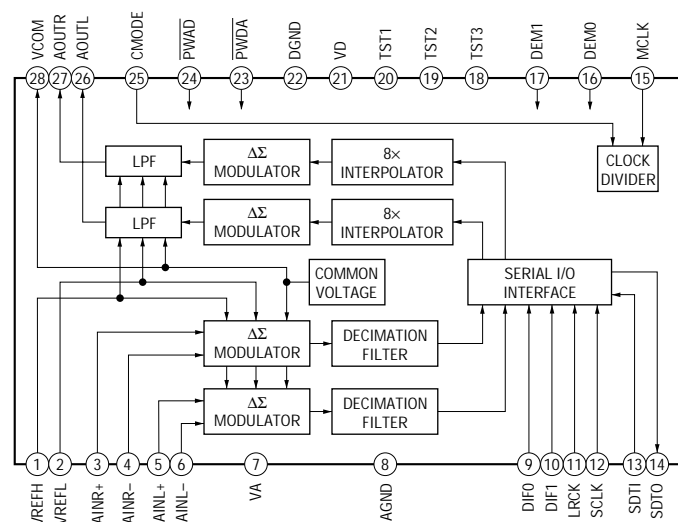
IC152 BH6511FS-E2



IC172 BA6287F

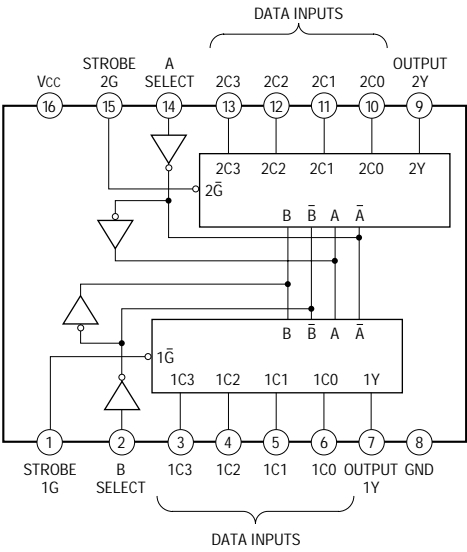


IC201 AK4520A-VF-E2

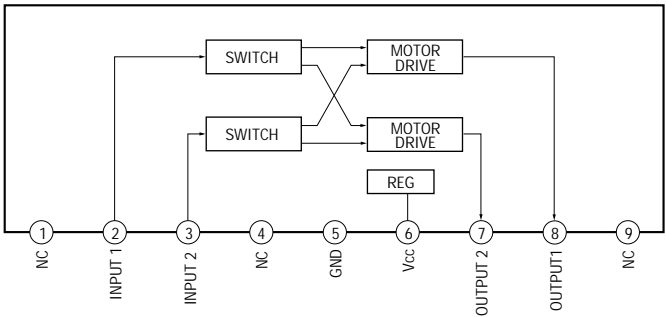


– MAIN Board –

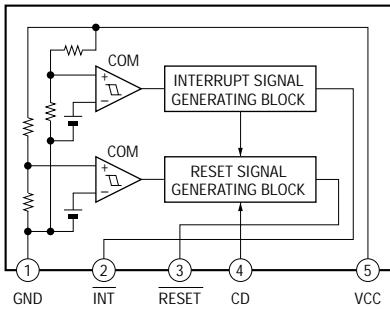
IC306 SN74HC153AN



IC308, 309 BA6208

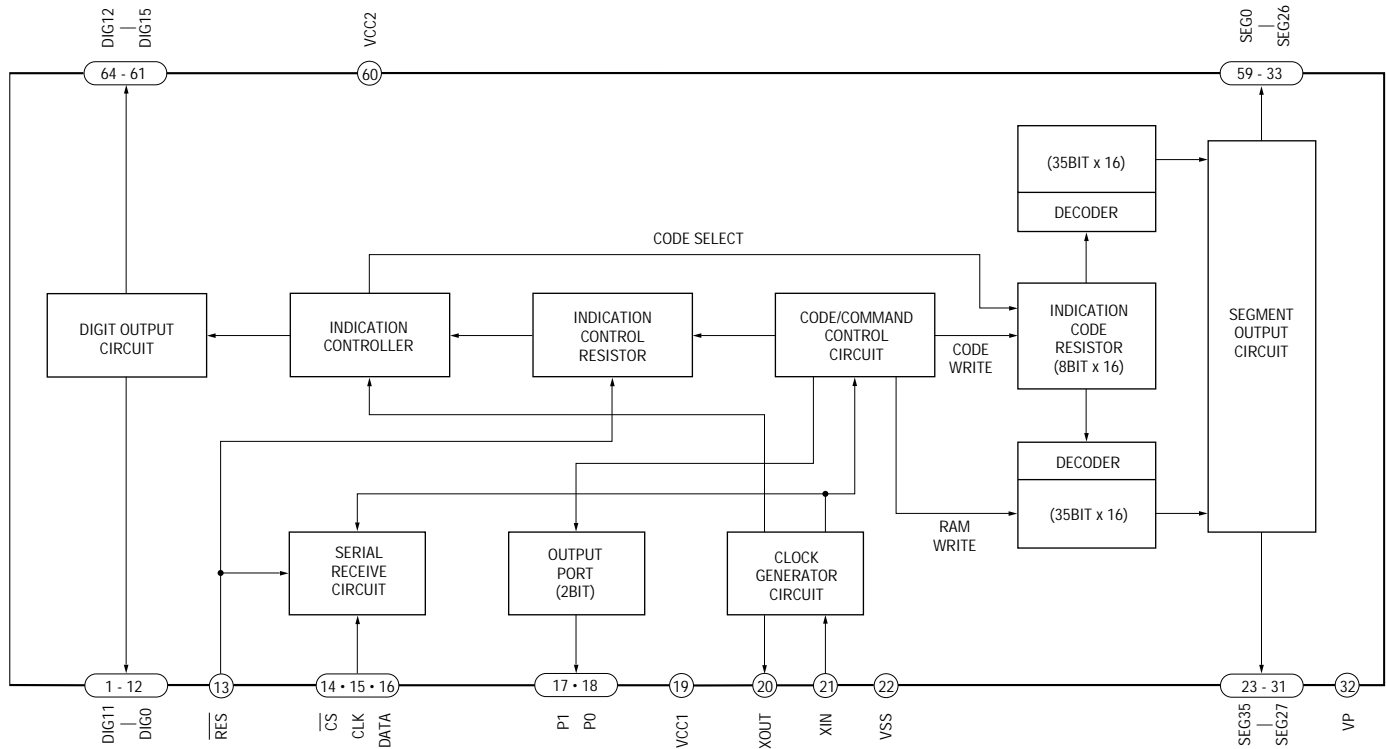


IC317 M62016L



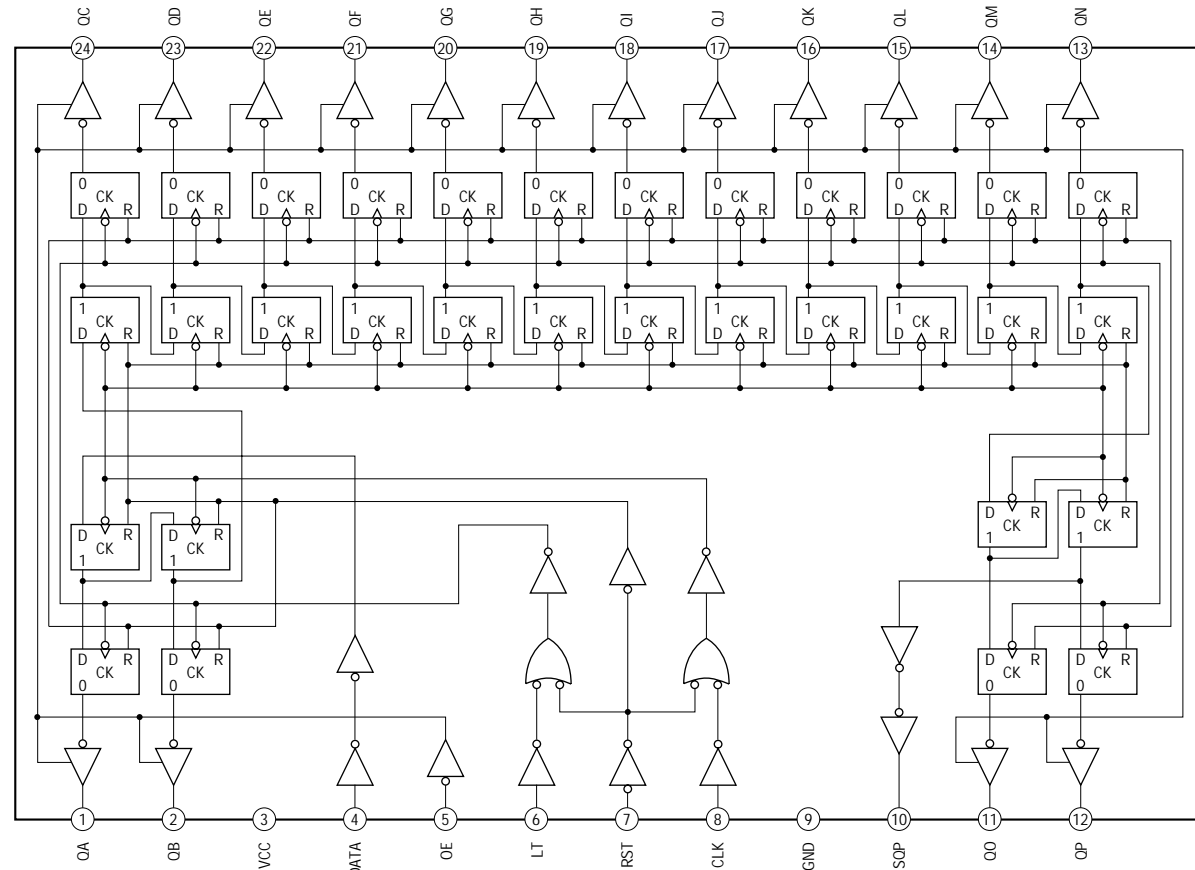
– PANEL (FL) Board –

IC701 M66004M8FP



– PANEL (R) Board –

IC702 M66310FP



6-11. IC PIN FUNCTION DESCRIPTION

• BD BOARD IC101 CXA2523AR (RF AMP, FOCUS/TRACKING ERROR AMP)

Pin No.	Pin Name	I/O	Function
1	I	I	I-V converted RF signal I input from the optical pick-up block detector
2	J	I	I-V converted RF signal J input from the optical pick-up block detector
3	VC	O	Middle point voltage (+1.65V) generation output terminal
4 to 9	A to F	I	Signal input from the optical pick-up detector
10	PD	I	Light amount monitor input from the optical pick-up block laser diode
11	APC	O	Laser amplifier output terminal to the automatic power control circuit
12	APCREF	I	Reference voltage input terminal for setting laser power
13	GND	—	Ground terminal
14	TEMPI	I	Connected to the temperature sensor
15	TEMPR	O	Output terminal for a temperature sensor reference voltage
16	SWDT	I	Writing serial data input from the CXD2652AR (IC121)
17	SCLK	I	Serial data transfer clock signal input from the CXD2652AR (IC121)
18	XLAT	I	Serial data latch pulse signal input from the CXD2652AR (IC121)
19	XSTBY	I	Standby signal input terminal “L”: standby (fixed at “H” in this set)
20	F0CNT	I	Center frequency control voltage input terminal of internal circuit (BPF22, BPF3T, EQ) input from the CXD2652AR (IC121)
21	VREF	O	Reference voltage output terminal Not used (open)
22	EQADJ	I	Center frequency setting terminal for the internal circuit (EQ)
23	3TADJ	I	Center frequency setting terminal for the internal circuit (BPF3T)
24	VCC	—	Power supply terminal (+3.3V)
25	WBLADJ	I	Center frequency setting terminal for the internal circuit (BPF22)
26	TE	O	Tracking error signal output to the CXD2652AR (IC121)
27	CSLED	I	Connected to the external capacitor for low-pass filter of the sled error signal
28	SE	O	Sled error signal output to the CXD2652AR (IC121)
29	ADFM	O	FM signal output of the ADIP
30	ADIN	I	Receives a ADIP FM signal in AC coupling
31	ADAGC	I	Connected to the external capacitor for ADIP AGC
32	ADFG	O	ADIP duplex signal (22.05 kHz \pm 1 kHz) output to the CXD2652AR (IC121)
33	AUX	O	Auxiliary signal (I ₃ signal/temperature signal) output to the CXD2652AR (IC121)
34	FE	O	Focus error signal output to the CXD2652AR (IC121)
35	ABCD	O	Light amount signal (ABCD) output to the CXD2652AR (IC121)
36	BOTM	O	Light amount signal (RF/ABCD) bottom hold output to the CXD2652AR (IC121)
37	PEAK	O	Light amount signal (RF/ABCD) peak hold output to the CXD2652AR (IC121)
38	RF	O	Playback EFM RF signal output to the CXD2652AR (IC121)
39	RFAGC	I	Connected to the external capacitor for RF auto gain control circuit
40	AGCI	I	Receives a RF signal in AC coupling
41	COMPO	O	User comparator output terminal Not used (open)
42	COMPP	I	User comparator input terminal Not used (fixed at “L”)
43	ADDC	I	Connected to the external capacitor for cutting the low band of the ADIP amplifier
44	OPO	O	User operational amplifier output terminal Not used (open)
45	OPN	I	User operational amplifier inversion input terminal Not used (fixed at “L”)
46	RFO	O	RF signal output terminal
47	MORFI	I	Receives a MO RF signal in AC coupling
48	MORFO	O	MO RF signal output terminal

• **BD BOARD IC121 CXD2652AR**

(DIGITAL SIGNAL PROCESSOR, DIGITAL SERVO PROCESSOR, EFM/ACIRC ENCODER/DECODER, SHOCK PROOF MEMORY CONTROLLER, ATRAC ENCODER/DECODER, 2M BIT D-RAM)

Pin No.	Pin Name	I/O	Function
1	MNT0 (FOK)	O	Focus OK signal output to the MD mechanism controller (IC316) “H” is output when focus is on (“L”: NG)
2	MNT1 (SHCK)	O	Track jump detection signal output to the MD mechanism controller (IC316)
3	MNT2 (XBUSY)	O	Monitor 2 signal output to the MD mechanism controller (IC316)
4	MNT3 (SLOC)	O	Monitor 3 signal output to the MD mechanism controller (IC316)
5	SWDT	I	Writing serial data signal input from the MD mechanism controller (IC316)
6	SCLK	I	Serial data transfer clock signal input from the MD mechanism controller (IC316)
7	XLAT	I	Serial data latch pulse signal input from the MD mechanism controller (IC316)
8	SRDT	O (3)	Reading serial data signal output to the MD mechanism controller (IC316)
9	SENS	O (3)	Internal status (SENSE) output to the MD mechanism controller (IC316)
10	XRST	I	Reset signal input from the MD mechanism controller (IC316) “L”: reset
11	SQSY	O	Subcode Q sync (SCOR) output to the MD mechanism controller (IC316) “L” is output every 13.3 msec Almost all, “H” is output
12	DQSY	O	Digital In U-bit CD format subcode Q sync (SCOR) output to the MD mechanism controller (IC316) “L” is output every 13.3 msec Almost all, “H” is output
13	RECP	I	Laser power selection signal input from the MD mechanism controller (IC316) “H”: recording mode, “L”: playback mode
14	XINT	O	Interrupt status output to the MD mechanism controller (IC316)
15	TX	I	Recording data output enable signal input from the MD mechanism controller (IC316) Writing data transmission timing input (Also serves as the magnetic head on/off output)
16	OSCI	I	System clock signal (512Fs=22.5792 MHz) input from the oscillator circuit
17	OSCO	O	System clock signal (512Fs=22.5792 MHz) output terminal Not used (open)
18	XTSL	I	Input terminal for the system clock frequency setting “L”: 45.1584 MHz, “H”: 22.5792 MHz (fixed at “H” in this set)
19	RVDD	—	Power supply terminal (+3.3V) (digital system)
20	RVSS	—	Ground terminal (digital system)
21	DIN	I	Digital audio signal input terminal when recording mode (for optical in)
22	DOUT	O	Digital audio signal output terminal when playback mode (for optical out) Not used
23	ADDT	I	Recording data input from the A/D, D/A converter (IC201)
24	DADT	O	Playback data output to the A/D, D/A converter (IC201)
25	LRCK	O	L/R sampling clock signal (44.1 kHz) output to the A/D, D/A converter (IC201)
26	XBCK	O	Bit clock signal (2.8224 MHz) output to the A/D, D/A converter (IC201)
27	FS256	O	Clock signal (11.2896 MHz) output to the A/D, D/A converter (IC201)
28	DVDD	—	Power supply terminal (+3.3V) (digital system)
29 to 32	A03 to A00	O	Address signal output to the D-RAM (IC124)
33	A10	O	Address signal output to the external D-RAM Not used (open)
34 to 38	A04 to A08	O	Address signal output to the D-RAM (IC124)
39	A11	O	Address signal output to the external D-RAM Not used (open)
40	DVSS	—	Ground terminal (digital system)
41	XOE	O	Output enable signal output to the D-RAM (IC124) “L” active
42	XCAS	O	Column address strobe signal output to the D-RAM (IC124) “L” active
43	A09	O	Address signal output to the D-RAM (IC124)
44	XRAS	O	Row address strobe signal output to the D-RAM (IC124) “L” active
45	XWE	O	Write enable signal output to the D-RAM (IC124) “L” active
46	D1	I/O	Two-way data bus with the D-RAM (IC124)

* I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

Pin No.	Pin Name	I/O	Function
47	D0	I/O	Two-way data bus with the D-RAM (IC124)
48	D2	I/O	
49	D3	I/O	
50	MVCI	I	Digital in PLL oscillation input from the external VCO Not used (fixed at “L”)
51	ASYO	O	Playback EFM full-swing output terminal
52	ASYI	I (A)	Playback EFM asymmetry comparator voltage input terminal
53	AVDD	—	Power supply terminal (+3.3V) (analog system)
54	BIAS	I (A)	Playback EFM asymmetry circuit constant current input terminal
55	RFI	I (A)	Playback EFM RF signal input from the CXA2523AR (IC101)
56	AVSS	—	Ground terminal (analog system)
57	PDO	O (3)	Phase comparison output for clock playback analog PLL of the playback EFM Not used (open)
58	PCO	O (3)	Phase comparison output for master clock of the recording/playback EFM master PLL
59	FILI	I (A)	Filter input for master clock of the recording/playback master PLL
60	FILO	O (A)	Filter output for master clock of the recording/playback master PLL
61	CLTV	I (A)	Internal VCO control voltage input of the recording/playback master PLL
62	PEAK	I (A)	Light amount signal (RF/ABCD) peak hold input from the CXA2523AR (IC101)
63	BOTM	I (A)	Light amount signal (RF/ABCD) bottom hold input from the CXA2523AR (IC101)
64	ABCD	I (A)	Light amount signal (ABCD) input from the CXA2523AR (IC101)
65	FE	I (A)	Focus error signal input from the CXA2523AR (IC101)
66	AUX1	I (A)	Auxiliary signal (I ₃ signal/temperature signal) input terminal Not used (fixed at “H”)
67	VC	I (A)	Middle point voltage (+1.65V) input from the CXA2523AR (IC101)
68	ADIO	O (A)	Monitor output of the A/D converter input signal Not used (open)
69	AVDD	—	Power supply terminal (+3.3V) (analog system)
70	ADRT	I (A)	A/D converter operational range upper limit voltage input terminal (fixed at “H” in this set)
71	ADRB	I (A)	A/D converter operational range lower limit voltage input terminal (fixed at “L” in this set)
72	AVSS	—	Ground terminal (analog system)
73	SE	I (A)	Sled error signal input from the CXA2523AR (IC101)
74	TE	I (A)	Tracking error signal input from the CXA2523AR (IC101)
75	AUX2	I (A)	Auxiliary signal input terminal Not used (fixed at “H”)
76	DCHG	I (A)	Connected to the +3.3V power supply
77	APC	I (A)	Error signal input for the laser automatic power control Not used (fixed at “H”)
78	ADFG	I	ADIP duplex FM signal (22.05 kHz \pm 1 kHz) input from the CXA2523AR (IC101)
79	F0CNT	O	Filter f0 control signal output to the CXA2523AR (IC101)
80	XLRF	O	Serial data latch pulse signal output to the CXA2523AR (IC101)
81	CKRF	O	Serial data transfer clock signal output to the CXA2523AR (IC101)
82	DTRF	O	Writing serial data output to the CXA2523AR (IC101)
83	APCREF	O	Control signal output to the reference voltage generator circuit for the laser automatic power control
84	LDDR	O	PWM signal output for the laser automatic power control Not used (open)
85	TRDR	O	Tracking servo drive PWM signal (–) output to the BH6511FS (IC152)
86	TFDR	O	Tracking servo drive PWM signal (+) output to the BH6511FS (IC152)
87	DVDD	—	Power supply terminal (+3.3V) (digital system)
88	FFDR	O	Focus servo drive PWM signal (+) output to the BH6511FS (IC152)
89	FRDR	O	Focus servo drive PWM signal (–) output to the BH6511FS (IC152)
90	FS4	O	Clock signal (176.4 kHz) output terminal (X’tal system) Not used (open)
91	SRDR	O	Sled servo drive PWM signal (–) output to the BH6511FS (IC152)
92	SFDR	O	Sled servo drive PWM signal (+) output to the BH6511FS (IC152)

* I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

Pin No.	Pin Name	I/O	Function
93	SPRD	O	Spindle servo drive PWM signal (–) output to the BH6511FS (IC152)
94	SPFD	O	Spindle servo drive PWM signal (+) output to the BH6511FS (IC152)
95	TEST0	I	Input terminal for the test (fixed at “L”)
96	TEST1	I	
97	TEST2	I	
98	TEST3	I	
99	DVSS	—	Ground terminal (digital system)
100	EFMO	O	EFM signal output terminal when recording mode

* I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

• MAIN BOARD IC305 μ PD78078GF-082-3BA (MASTER CONTROLLER)

Pin No.	Pin Name	I/O	Function
1 to 4	DATA0 to DATA3	I/O	Two-way data bus with the system control bus
5	CLOCK OUT	O	Bus data transfer clock signal output terminal for the system control bus
6, 7	NC	I	Not used (fixed at "L")
8	POW DOWN	I	Power down detection signal input terminal "L": power down, normally: "H"
9	VSS	—	Ground terminal
10	X2	O	Main system clock output terminal (5 MHz)
11	X1	I	Main system clock input terminal (5 MHz)
12	VDD	—	Power supply terminal (+5V)
13	XT2	O	Sub system clock output terminal Not used (open)
14	XT1	I	Sub system clock input terminal Not used (fixed at "H")
15	RESET	I	System reset signal input from the reset signal generator (IC316) "L": reset For several hundreds msec. after the power supply rises, "L" is input, then it changes to "H"
16	CLOCK IN	I	Bus data reading clock signal input for the system control bus
17	BUS BUSY	I/O	Busy signal in/out terminal for the system control bus
18	SENSOR (MAIN)	I	Detection signal input from the elevator position sensor (D1; MAIN side)
19	JOG A	I	Jog dial pulse (A) input from the rotary encoder (S661) (for SELECTOR)
20	JOG B	I	Jog dial pulse (B) input from the rotary encoder (S661) (for SELECTOR)
21, 22	NC	I	Not used (fixed at "L")
23	AVDD	—	Power supply terminal (+5V) (for A/D converter)
24	AVREF0	I	Reference voltage (+5V) input terminal (for A/D converter)
25	KEY0	I	Key input terminal (A/D input) (S700 to S707) DISPLAY, PROGRAM, SHUFFLE, CONTINUE, DISC SKIP, REPEAT, REC IT, CD SYNC keys input
26	KEY1	I	Key input terminal (A/D input) (S711 to S713, S716 and S718) MD1 to MD3, \triangleright , \square , ENTER/YES keys input
27	KEY2	I	Key input terminal (A/D input) (S721 to S723 and S726 to S728) REC 1 to REC 3, \blacksquare , RELEASE, MENU/NO keys input
28	KEY3	I	Key input terminal (A/D input) (S708 and S709) \blacktriangleleft , \blacktriangleright keys input
29	SERIAL	I	Input terminal for the SERIAL/UART setting "L": SERIAL, "H": UART (fixed at "L" in this set)
30	3DISC	I	Input terminal for the MD changer type setting "L": 3 discs, "H": 5 discs (fixed at "L" in this set)
31	FL13	I	Input terminal for the figure number setting of display "L": 14 figures, "H": 13 figures (fixed at "H" in this set)
32	SEPARATE	I	Input terminal for the separate/complete type setting of MD section and other sections "L": complete type, "H": separate type (fixed at "H" in this set)
33	AVSS	—	Ground terminal (for A/D converter)
34	LOAD DA	O	D/A output of loading motor drive signal Not used (open)
35	ELV DA	O	D/A output of elevator motor drive signal Not used (open)
36	AVREF1	I	Reference voltage (+5V) input terminal (for D/A converter)
37	UART RXD	I	Receive data input of UART data Not used (open)
38	UART TXD	O	Transmit data output of UART data Not used (open)
39	NC	I	Not used (fixed at "L")
40	VSS	—	Ground terminal
41	NC	I	Not used (fixed at "L")
42	FL DATA	O	Serial data output to the fluorescent indicator tube driver (IC701)
43	FL CLOCK	O	Serial data transfer clock signal output to the fluorescent indicator tube driver (IC701)
44	FL CL	O	Chip enable signal output to the fluorescent indicator tube driver (IC701) "L" active

Pin No.	Pin Name	I/O	Function
45	FL RES	O	Forced reset signal output to the fluorescent indicator tube driver (IC701) “L”: forced reset
46	SIO RXD	I	UART data input from the MD mechanism controller (IC316)
47	SIO TXD	O	UART data output to the MD mechanism controller (IC316)
48	SIO CLK	O	Serial data transfer clock signal output to the MD mechanism controller (IC316)
49	RTS	O	UART data transmission request signal output to the MD mechanism controller (IC316) “L”: busy status
50	CTS	I	UART data reception request signal input from the MD mechanism controller (IC316) “L”: busy status
51	OEMREST	O	Reset signal output to the MD mechanism controller (IC316) “H”: reset
52	SENSOR (SUB)	I	Detection signal input from the elevator position sensor (D2; SUB side)
53	NC	I	Not used (fixed at “L”)
54	DIG	O	LED drive signal output for the DIGITAL IN indicator (D703) “L”: LED on
55	ANA	O	LED drive signal output for the ANALOG IN indicator (D702) “L”: LED on
56	MONO	O	LED drive signal output for the MONO indicator (D701) “L”: LED on
57	LED REST	O	Reset signal output to the LED driver (IC702) “L”: reset
58	LED LATCH	O	Serial data latch pulse output to the LED driver (IC702)
59	LED CLOCK	O	Serial data transfer clock signal output to the LED driver (IC702)
60	LED DATA	O	Serial data output to the LED driver (IC702)
61 to 63	NC	I	Not used (fixed at “L”)
64	CONTINUE	O	LED drive signal output for the CONTINUE indicator (D712) “H”: LED on
65	SHUFFLE	O	LED drive signal output for the SHUFFLE indicator (D713) “H”: LED on
66	PROGRAM	O	LED drive signal output for the PROGRAM indicator (D714) “H”: LED on
67	CD SYNC	O	LED drive signal output for the CD SYNC indicator (D704) “H”: LED on
68	REC IT	O	LED drive signal output for the REC IT indicator (D705) “H”: LED on
69, 70	NC	I	Not used (fixed at “L”)
71	VSS	—	Ground terminal
72, 73	NC	I	Not used (fixed at “L”)
74, 75	MDMSPEED	I	Input terminal for the PWM setting (fixed at “L” in this set)
76	MDMSPEED	I	Input terminal for the PWM setting (fixed at “H” in this set)
77 to 81	MDMSPEED	I	Input terminal for the PWM setting (fixed at “L” in this set)
82	LD IN	O	Motor drive signal output to the loading motor drive (IC308) “L” active *1
83	LD OUT	O	Motor drive signal output to the loading motor drive (IC308) “L” active *1
84	ELV UP	O	Motor drive signal output to the elevator up/down motor drive (IC309) “L” active *2
85	ELV DW	O	Motor drive signal output to the elevator up/down motor drive (IC309) “L” active *2
86	INT SW	I	Detection input from the elevator position detect switch (S8) The elevator is home position when “L”
87	DISC1 SW	I	Detection input from the disc 1 detect switch (S1) “L”: disc 1 in

*1 Loading motor (M903) control

Terminal \ Function	LOAD IN	LOAD OUT	BRAKE	RUN IDLE
LD IN (pin ⑧2)	“L”	“H”	“H”	“L”
LD OUT (pin ⑧3)	“H”	“L”	“H”	“L”

*2 Elevator up/down motor (M904) control

Terminal \ Function	ELEVATOR UP	ELEVATOR DOWN	BRAKE	RUN IDLE
ELV UP (pin ⑧4)	“L”	“H”	“H”	“L”
ELV DW (pin ⑧5)	“H”	“L”	“H”	“L”

Pin No.	Pin Name	I/O	Function
88	DISC2 SW	I	Detection input from the disc detect switch “L”: disc in Not used (fixed at “H”)
89	DISC3 SW	I	Detection input from the disc 2 detect switch (S3) “L”: disc 2 in
90	DISC4 SW	I	Detection input from the disc detect switch “L”: disc in Not used (fixed at “H”)
91	DISC5 SW	I	Detection input from the disc 3 detect switch (S5) “L”: disc 3 in
92	OUT SW	I	Detection input from the loading out detect switch (S11) “L” at a load-out position, others: “H”
93	IN SW	I	Detection input from the loading in detect switch (S10) “L” at a load-in position, others: “H”
94	NC	I	Not used (fixed at “L”)
95	ATTENUATE	O	–6 dB attenuate control signal output of the MD analog input Not used (open)
96	DIG IN SEL0	O	Control signal output to the optical in selection circuit (IC306) *3
97	MDM RESET SW	I	Reset switch (S9) input of the mini-disc “L”: reset
98	<u>KANA</u>	I	Input terminal for the Japanese letter in function setting “L”: input possible (fixed at “H” in this set)
99	DIG IN SEL1	O	Control signal output to the optical in selection circuit (IC306) *3
100	NC	I	Not used (fixed at “L”)

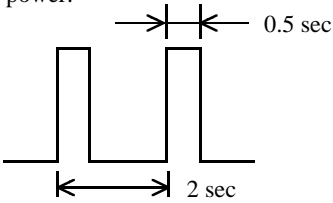
*3 Optical in select control

Terminal \ Function	CD	VIDEO 1 (CS/BS)	VIDEO 2 (LD/DVD)	OTHERS
DIG IN SEL0 (pin ⑨⑥)	“L”	“H”	“L”	“H”
DIG IN SEL1 (pin ⑨⑨)	“L”	“L”	“H”	“H”

(): MDS-MS717

• **BD BOARD IC316 M30610MCA-253FP (MD MECHANISM CONTROLLER)**

Pin No.	Pin Name	I/O	Function
1	JOG0	I	JOG dial pulse input of the rotary encoder Not used (fixed at “L”)
2	JOG1	I	JOG dial pulse input of the rotary encoder Not used (fixed at “L”)
3, 4	—	I	Not used (fixed at “L”)
5	SQSY	I	Subcode Q sync (SCOR) input from the CXD2652AR (IC121) “L” is input every 13.3 msec Almost all, “H” is input
6	REMCN	I	Remote control signal input terminal Not used (fixed at “H”)
7	EMP	O	Emphasis control signal output to the A/D, D/A converter (IC201)
8	BYTE	I	External data bus line byte selection signal input of the master controller (IC305) “L”: 16 bit, “H”: 8 bit (fixed at “L”)
9	CNVSS	—	Ground terminal
10	XIN-T	I	Sub system clock input terminal Not used (fixed at “L”)
11	XOUT-T	O	Sub system clock output terminal Not used (pull down)
12	<u>SYSTEM-RST</u>	I	System reset signal input from the master controller (IC305) and reset signal generator (IC317) “L”: reset For several hundreds msec. after the power supply rises, “L” is input, then it changes to “H”
13	XOUT	O	Main system clock output terminal (7 MHz)
14	GND	—	Ground terminal
15	XIN	I	Main system clock input terminal (7 MHz)
16	+3.3V	—	Power supply terminal (+3.3V)
17	—	I	Not used (fixed at “H”)
18	<u>AMUTE</u>	O	Muting control signal output terminal Not used (open)
19	<u>PWR-DWN</u>	I	Power down detection signal input terminal “L”: power down, normally: “H”
20	DQSY	I	Digital In U-bit CD format subcode Q sync (SCOR) input from the CXD2652AR (IC121) “L” is input every 13.3 msec Almost all, “H” is input
21	STB	O	Strobe signal output to the external device “H”: power on, “L”: standby mode Not used (pull down)
22	DA-RST	O	Reset signal output terminal “L”: reset Not used (pull down)
23	XINT	I	Interrupt status input from the CXD2652AR (IC121)
24	DA-EN	O	Enable signal output to the A/D, D/A converter (IC201) (for D/A converter block)
25	AD-EN	O	Enable signal output to the A/D, D/A converter (IC201) (for A/D converter block)
26	MEC-BUSY	O	Mechanism controller busy status monitor output to the master controller (IC305)
27	FLCS	O	Chip select signal output for the display indicate Not used (pull down)
28	FLCLK	O	Serial data transfer clock signal output for the display indicate Not used (pull down)
29	—	I	Not used (fixed at “L”)
30	FLDATA	O	Serial data output for the display indicate Not used (pull down)
31	TXD	O	UART data output to the master controller (IC305)
32	RXD	I	UART data input from the master controller (IC305)
33	CLK	I	Serial data transfer clock signal input from the master controller (IC305)
34	MAS-BUSY	I	Master controller busy status monitor input from the master controller (IC305)
35	SWDT	O	Writing data output to the CXD2652AR (IC121)
36	SRDT	I	Reading data input from the CXD2652AR (IC121)
37	SCLK	O	Serial clock signal output to the CXD2652AR (IC121)
38	XLAT	O	Serial latch signal output to the CXD2652AR (IC121)
39	—	I	Not used (fixed at “L”)
40	<u>DIG-RST</u>	O	Reset signal output to the CXD2652AR (IC121) and BH6511FS (IC152) “L”: reset
41	SENS	I	Internal status (SENSE) input from the CXD2652AR (IC121)

Pin No.	Pin Name	I/O	Function
42	SCTX	O	Recording data output enable signal output to the CXD2652AR (IC121) and overwrite head driver (IC181) Writing data transmission timing output (Also serves as the magnetic head on/off output)
43	—	I	Not used (fixed at “L”)
44	WRPWR	O	Laser power select signal output to the CXD2652AR (IC121) and HF module switch circuit “H”: recording mode, “L”: playback mode
45	MNT3	I	Monitor signal input from the CXD2652AR (IC121)
46	MNT2	I	Busy signal input from the CXD2652AR (IC121)
47	MNT1	I	Track jump detection signal input from the CXD2652AR (IC121)
48	MNT0	I	Focus OK signal input from the CXD2652AR (IC121) “H” is input when focus is on (“L”: NG)
49	LDON	O	Laser diode on/off control signal output to the automatic power control circuit “H”: laser on
50	MOD	O	Laser modulation select signal output to the HF module switch circuit Playback power: “H”, Stop: “L”, Recording power: 
51	LDIN	O	Loading motor control signal output terminal Not used (open)
52	LDOUT	O	Loading motor control signal output terminal Not used (open)
53	LD-LOW	O	Loading motor drive voltage control signal output terminal Not used (open)
54	PROTECT	I	Rec-proof claw detect input from the protect detect switch (S683) “H”: write protect
55	REFLECT	I	Detection input from the disc reflection rate detect switch (S682) “L”: high reflection rate disc, “H”: low reflection rate disc
56	PACK-IN	I	Detection input from the disc detect switch Not used (fixed at “H”)
57	PACK-OUT	I	Detection input from the loading-out detect switch “L” at a load-out position, others: “H” Not used (fixed at “H”)
58	CHACK-IN	I	Detection input from the disc chucking-in detect switch “L”: chucking Not used (fixed at “H”)
59	LIMIT-IN	I	Detection input from the sled limit-in detect switch (S681) The optical pick-up is inner position when “L”
60	REC.P	I	Detection input from the recording position detect switch Not used (fixed at “H”)
61	PB.P	I	Detection input from the playback position detect switch Not used (fixed at “L”)
62	+3.3V	—	Power supply terminal (+3.3V)
63	—	I	Not used (fixed at “L”)
64	GND	—	Ground terminal
65 to 72	—	I	Not used (fixed at “L”)
73	HEAD SW UP	I	Detection input from the overwrite head up position detect switch (S6) The overwrite head is up position when “L”
74	HEAD SW DOWN	I	Detection input from the overwrite head down position detect switch (S7) The overwrite head is down position when “L”
75	HEAD UP	O	Motor control signal output to the overwrite head up/down motor driver (IC172) *1
76	HEAD DOWN	O	Motor control signal output to the overwrite head up/down motor driver (IC172) *1
77, 78	—	I	Not used (fixed at “L”)
79	SDA	I/O	Two-way data bus for the EEPROM (IC171)
80	SCL	O	Clock signal output to the EEPROM (IC171)

Pin No.	Pin Name	I/O	Function
81	—	I	Not used (fixed at “L”)
82	—	I	Not used (fixed at “H”)
83	MODE	I	Input terminal for setting mini-disc single mode or changer mode “L”: mini-disc single mode, “H”: changer mode (fixed at “H” in this set)
84, 85	—	I	Not used (fixed at “L”)
86	REC/PB	O	Record/playback control signal output terminal Not used (pull down)
87	DOUTXMUTE	O	Muting control signal output terminal Not used (pull down)
88 to 90	—	I	Not used (fixed at “L”)
91 to 93	KEY0 to KEY2	I	Key input terminal Not used (fixed at “H”)
94, 95	—	I	Not used (fixed at “L”)
96	AVSS	—	Ground terminal
97	—	I	Not used (fixed at “L”)
98	VREF	I	Reference voltage (+3.3V) input terminal
99	+3.3V	—	Power supply terminal (+3.3V)
100	—	I	Not used (fixed at “L”)

*1 Overwrite head up/down motor (M905) control

Terminal \ Function	HEAD UP	HEAD DOWN	BRAKE	RUN IDLE
HEAD UP (pin ⑦⑤)	“H”	“L”	“H”	“L”
HEAD DOWN (pin ⑦⑥)	“L”	“H”	“H”	“L”

SECTION 7

EXPLODED VIEWS



NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
Example:
KNOB, BALANCE (WHITE) . . . (RED)

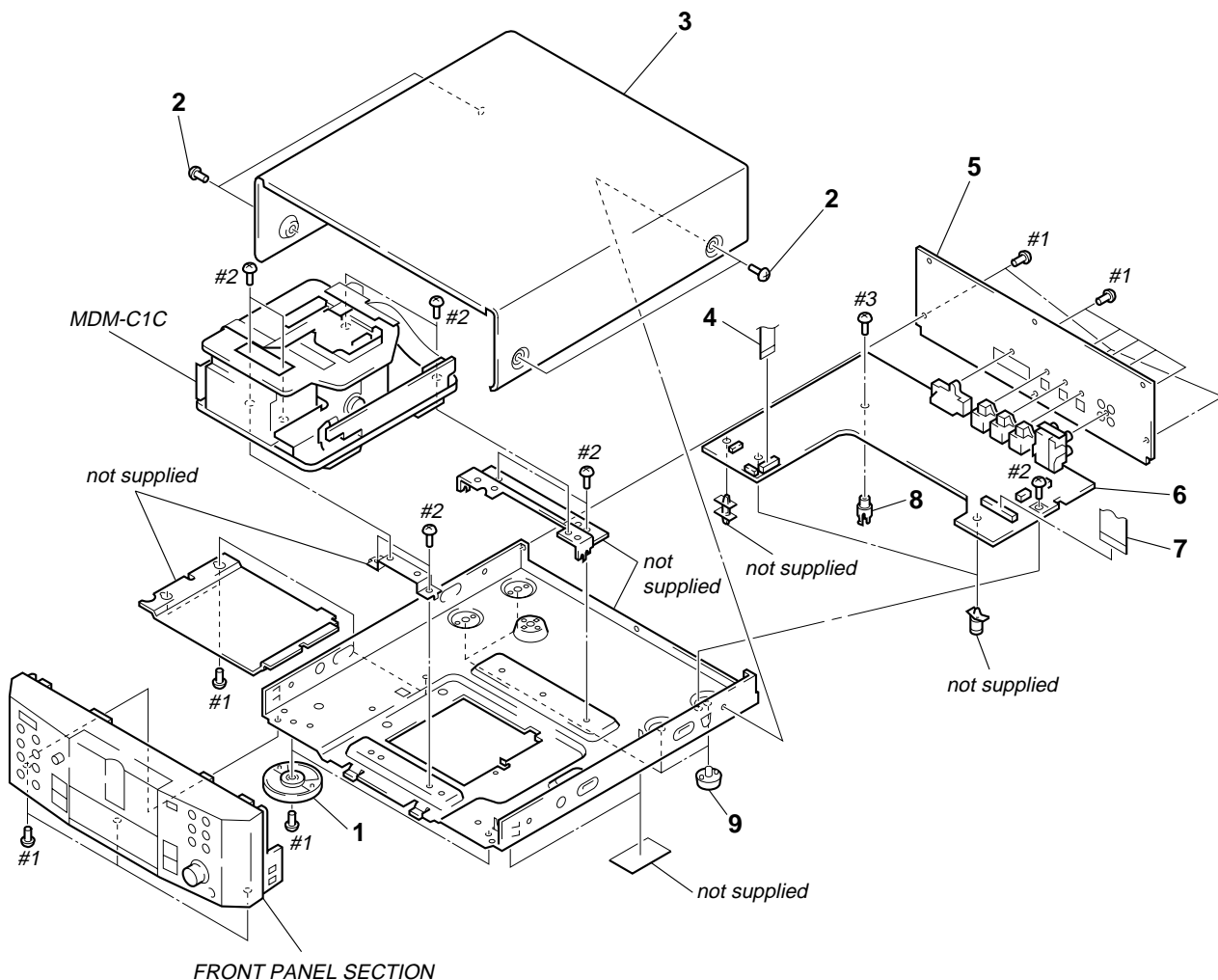
↑
Parts Color

↑
Cabinet's Color

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of the electrical parts list.

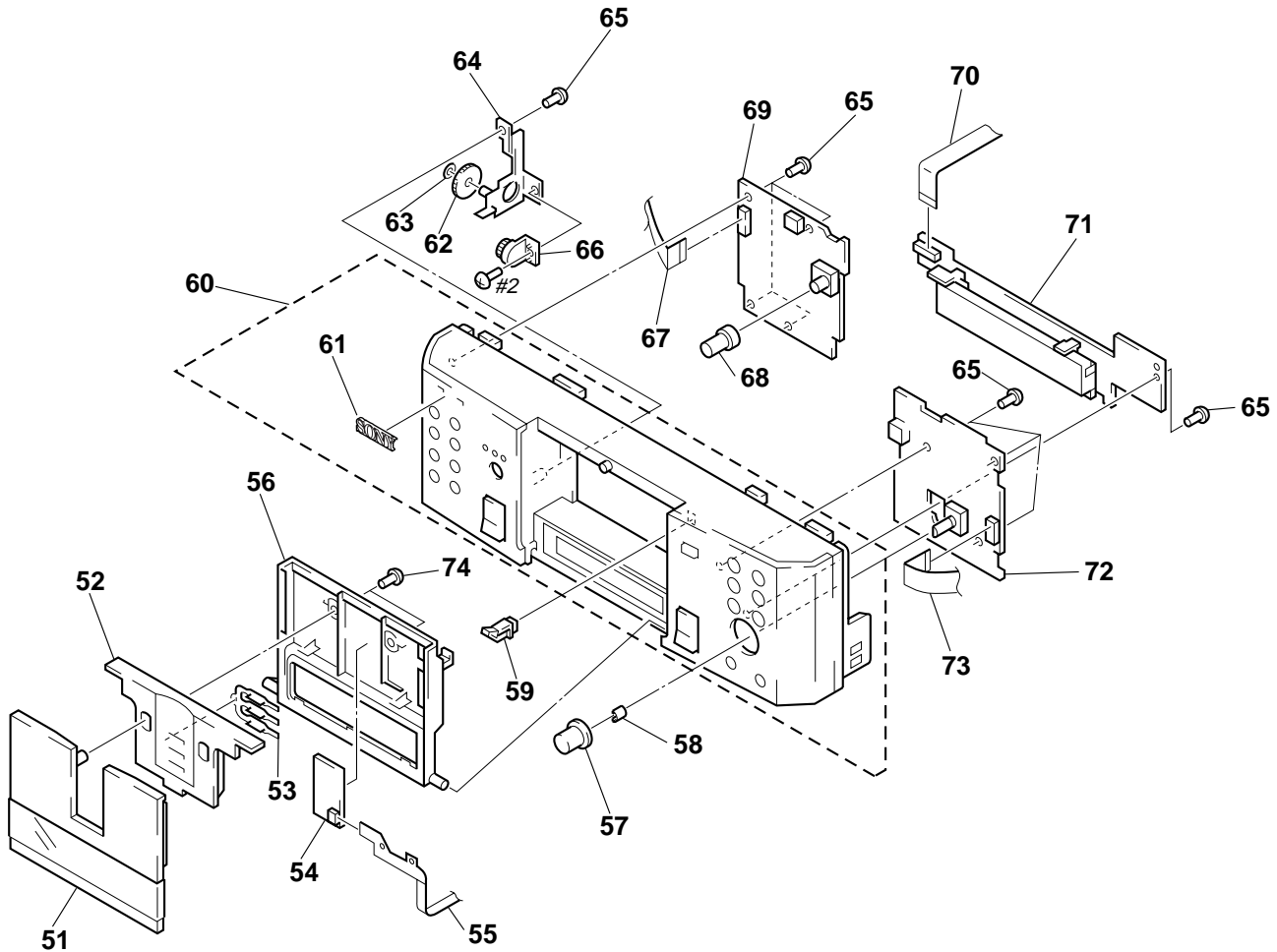
The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

(1) CHASSIS SECTION



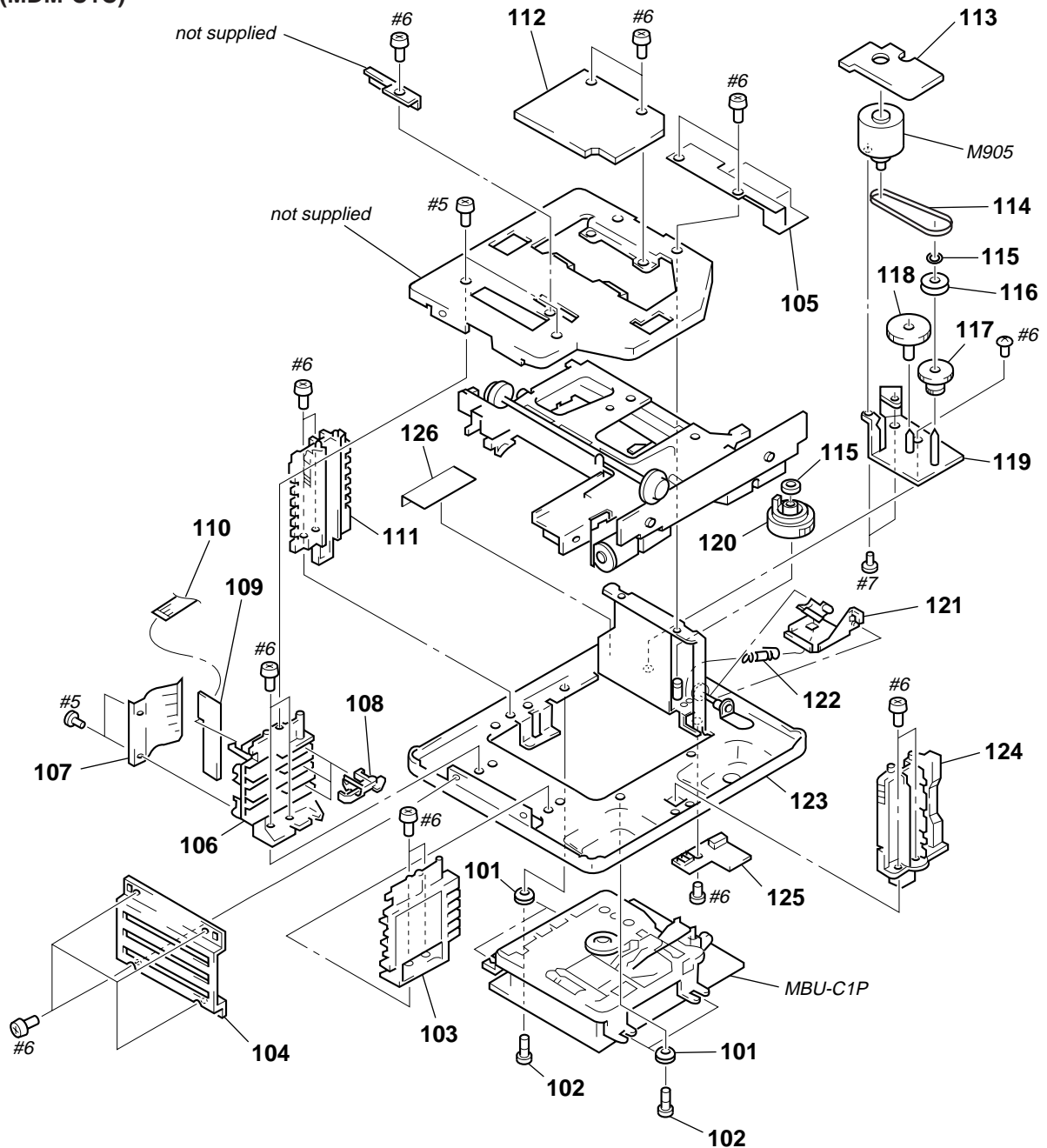
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	X-4949-526-1	FOOT (F) ASSY		* 5	4-995-076-21	PANEL (MDS), BACK (MS717)	
2	3-363-099-01	SCREW (CASE 3 TP2)		* 6	A-4407-881-A	MAIN BOARD, COMPLETE	
* 3	3-939-652-11	CASE		7	1-783-037-11	WIRE (FLAT TYPE) (23 CORE)	
4	1-783-038-11	WIRE (FLAT TYPE) (17 CORE)		* 8	4-968-100-01	SUPPORT, PC	
* 5	4-995-076-11	PANEL (MDS), BACK (EX880)		9	4-965-822-01	FOOT	

(2) FRONT PANEL SECTION



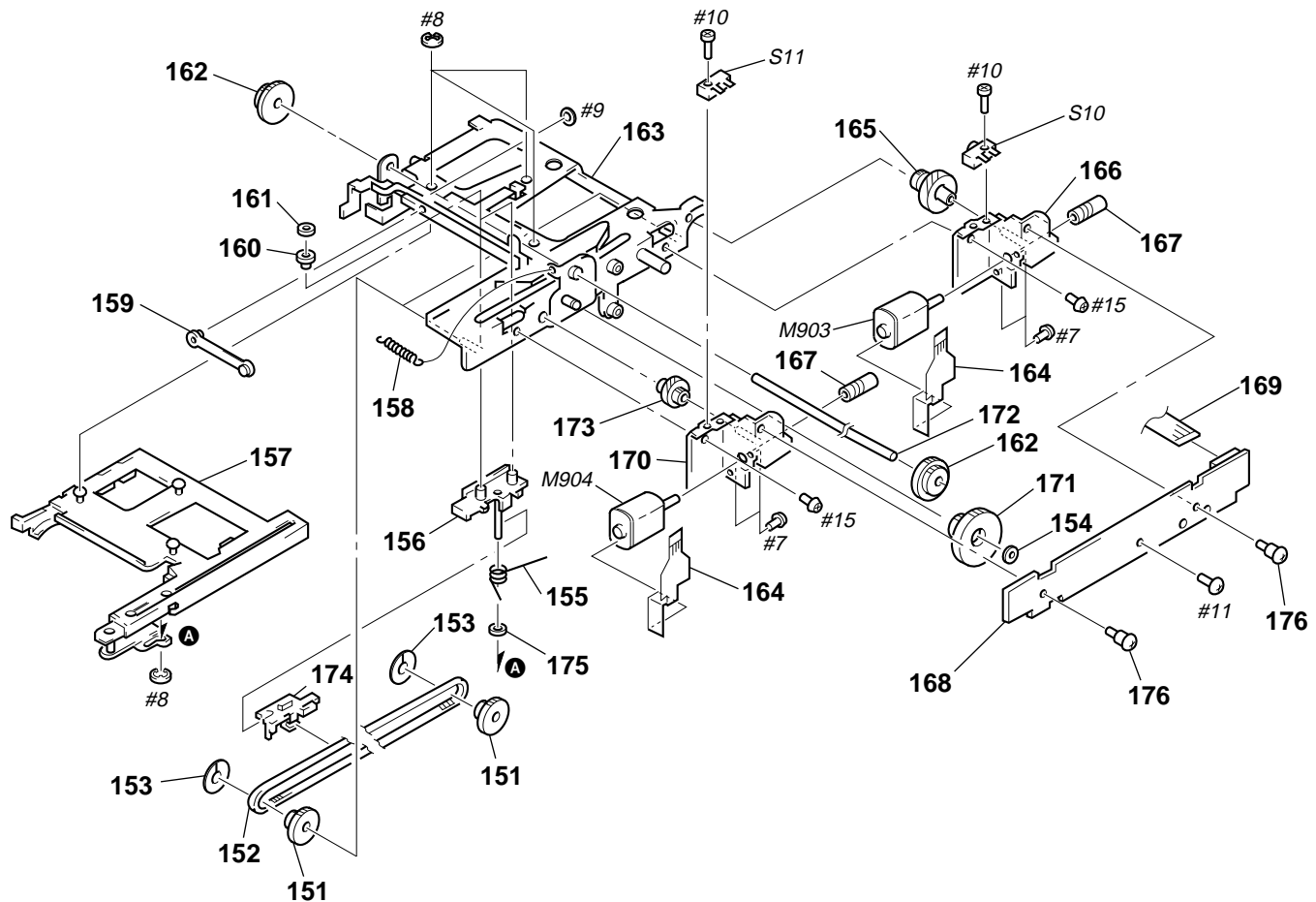
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	X-4949-062-1	LID (F) ASSY		63	3-701-438-21	WASHER (E-2.3), NYLON	
52	4-995-071-01	PLATE (LID), ORNAMENTAL		64	X-4949-063-1	BRACKET (GEAR) ASSY	
53	4-995-073-01	INDICATOR (LID)		65	4-951-620-01	SCREW (2.6X8), +BVTP	
* 54	1-667-936-11	LED BOARD		66	3-354-963-21	DAMPER	
55	1-668-027-13	FLEXIBLE BOARD		67	1-783-040-11	WIRE (FLAT TYPE) (13 CORE) (160mm)	
56	4-995-070-01	LID (R)		68	4-995-075-01	KNOB (REC)	
57	4-995-074-01	KNOB (JOG)		* 69	A-4724-095-A	PANEL (L) BOARD, COMPLETE	
58	4-988-161-01	SPRING, RING		70	1-783-041-11	WIRE (FLAT TYPE) (9 CORE)	
59	4-995-081-01	LATCH, DC		* 71	A-4724-097-A	PANEL (FL) BOARD, COMPLETE	
60	X-4949-026-1	PANEL ASSY, FRONT		* 72	A-4724-096-A	PANEL (R) BOARD, COMPLETE	
61	4-962-708-01	EMBLEM (4-A), SONY		73	1-783-039-11	WIRE (FLAT TYPE) (11 CORE)	
62	4-948-109-01	GEAR		74	4-951-620-41	SCREW (2.6), +BVTP	

(3) MD MECHANISM DECK SETCION-1
(MDM-C1C)



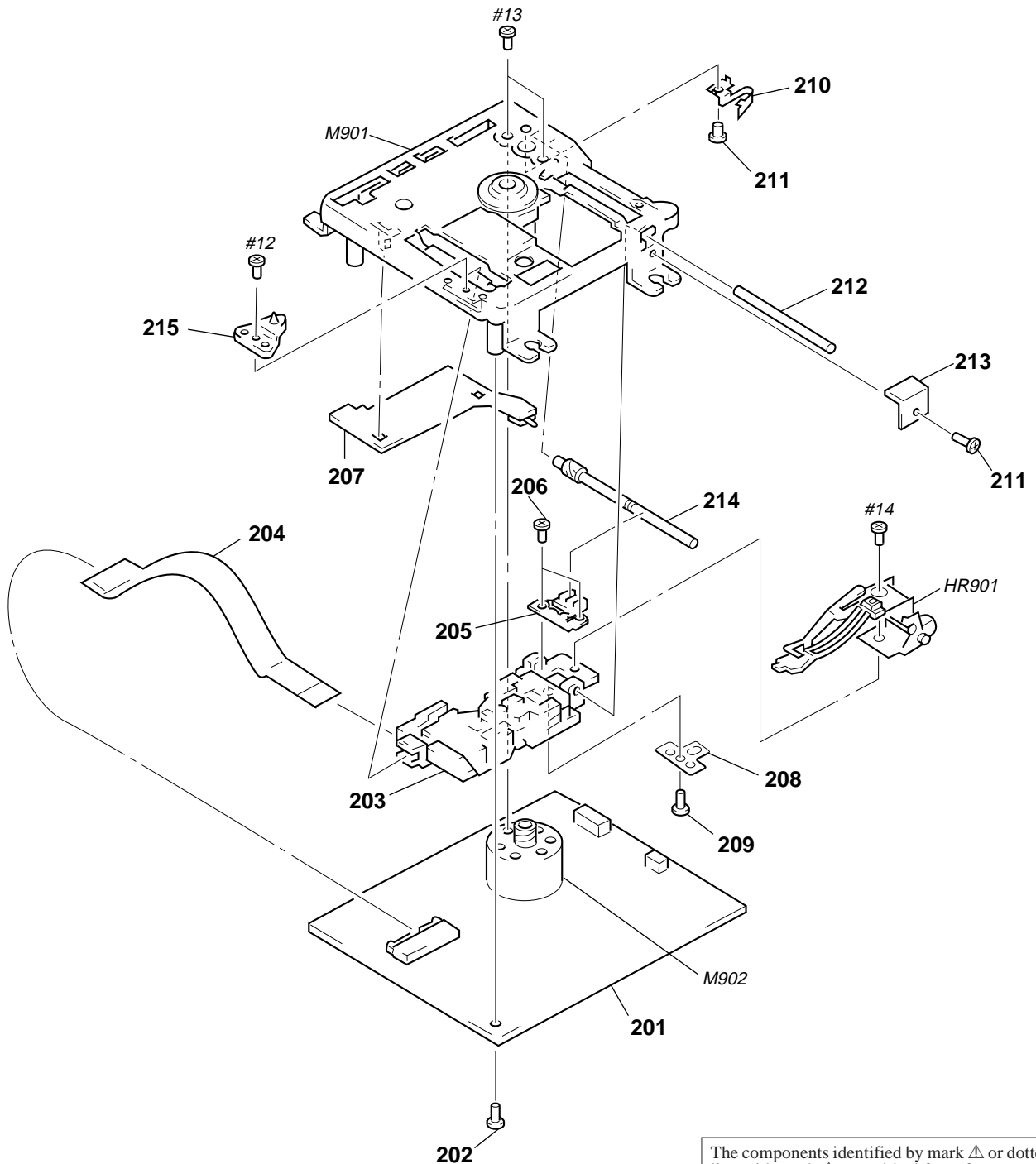
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	4-987-327-01	INSULATOR		115	3-701-438-21	WASHER (E-2.3), NYLON	
102	4-987-240-01	SCREW, STEP		116	3-018-636-01	GEAR (PULLEY) (C)	
* 103	4-994-631-01	HOLDER (RN)		117	3-018-203-01	GEAR (HEAD) (A)	
* 104	4-994-633-01	HOLDER (FN)		118	3-018-204-01	GEAR (HEAD) (B)	
* 105	4-997-713-01	COVER (FFC)		119	X-3374-348-1	CHASSIS (HEAD GEAR) ASSY	
106	4-994-632-01	HOLDER (LN)		120	4-987-242-01	GEAR (CAM)	
107	4-986-934-01	SPRING (LOCK), LEAF		* 121	4-987-241-01	LEVER (H)	
108	4-999-730-01	LOCK (NEW)		122	4-996-395-02	SPRING (H), TENSION	
* 109	1-670-367-11	DISC SW BOARD		123	X-4947-927-1	CHASSIS (BASE) ASSY	
110	1-782-910-11	WIRE (FLAT TYPE) (7 CORE)		124	4-994-630-01	RACK (RN)	
111	4-988-375-01	RACK (L)		* 125	1-667-395-14	HEAD SW BOARD	
* 112	1-667-396-14	MECH RELAY BOARD		126	3-840-486-02	CUSHION, SPEAKER	
* 113	1-667-633-14	MOTOR RELAY BOARD		M905	X-4949-160-1	MOTOR (HEAD) ASSY	
114	3-661-080-00	BELT, (A)				(HEAD, OVER WRITE UP/DOWN)	

(4) MD MECHANISM DECK SETCION-2
(MDM-C1C)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	4-986-951-01	GEAR (4)		167	4-986-953-01	WORM	
152	4-987-243-01	BELT, TOOTHED LOCK		* 168	1-667-394-14	ELEVATOR RELAY BOARD	
153	4-986-947-01	STOPPER		169	1-782-909-11	WIRE (FLAT TYPE) (13 CORE) (185mm)	
154	3-701-438-21	WASHER (E-2.3), NYLON		170	X-4947-928-1	BRACKET (1A) ASSY	
155	4-987-236-01	SPRING, TORSION		171	4-986-950-01	GEAR (3)	
156	X-4947-932-1	SLIDER (2) ASSY		172	4-987-244-01	SHAFT (1)	
* 157	X-3374-359-1	HOLDER (1H) ASSY		173	4-986-949-11	GEAR (2)	
158	4-987-238-01	SPRING (2), TENSION		174	4-987-235-01	CLAMP (B)	
159	X-4948-193-1	LEVER (S) ASSY		175	3-326-162-02	WASHER, POLYETHYLENE, SLIT	
160	4-987-111-01	ROLLER (2)		176	4-997-937-01	SCREW (EL), STEP	
161	3-307-948-11	WASHER, NYLON		M903	1-698-874-11	MOTOR, DC (LOADING)	
162	4-986-952-01	GEAR (5)		M904	1-698-874-11	MOTOR, DC (ELEVATOR UP/DOWN)	
* 163	X-4949-171-1	CHASSIS (ELEVATOR) (NEW) ASSY		S10	1-762-952-11	SWITCH, PUSH (1 KEY) (LOADING IN DETECT)	
164	1-667-955-11	FLEXIBLE BOARD		S11	1-762-952-11	SWITCH, PUSH (1 KEY)	(LOADING OUT DETECT)
165	4-986-948-01	GEAR (1)					
166	X-4949-225-3	BRACKET (1BN) ASSY					

(5) BASE UNIT SECTION
(MBU-C1P)



The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
* 201	A-4699-939-A	BD BOARD, COMPLETE		210	4-979-906-11	SPRING (LEAD SCREW)	
202	4-908-618-21	SCREW (+BTP) (2X6)		211	3-342-375-11	SCREW (M1.7X1.4), SPECIAL	
\triangle 203	8-583-028-02	OPTICAL PICK-UP KMS-260A/J1N		* 212	4-988-702-01	SHAFT (MAIN)	
204	1-664-039-11	OP TRANSLATION FLEXIBLE BOARD		* 213	4-988-484-01	STOPPER	
205	4-963-914-02	RACK (INSERTER)		214	A-3304-200-A	SCREW ASSY, LEAD	
206	3-366-890-11	SCREW (M1.4)		* 215	4-983-511-02	PIN (OUTSERT)	
* 207	1-667-392-13	SW BOARD		HR901	1-500-489-11	HEAD, OVER WRITE	
208	4-987-061-01	SPACER (RACK)		M901	A-4672-241-A	MOTOR ASSY, SPINDLE	
209	4-955-841-11	SCREW		M902	A-4672-240-A	MOTOR ASSY, SLED	

SECTION 8 ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- **RESISTORS**
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable

- Items marked "***" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- **SEMICONDUCTORS**
In each case, u: μ , for example:
uA. . : μ A. . uPA. . : μ PA. .
uPB. . : μ PB. . uPC. . : μ PC. .
uPD. . : μ PD. .
- **CAPACITORS**
uF: μ F
- **COILS**
uH: μ H

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-4699-939-A	BD BOARD, COMPLETE *****		C140	1-163-229-11	CERAMIC CHIP 12PF 5%	50V
		< CAPACITOR >		C142	1-163-251-11	CERAMIC CHIP 100PF 5%	50V
C001	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C143	1-163-251-11	CERAMIC CHIP 100PF 5%	50V
C002	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C144	1-163-251-11	CERAMIC CHIP 100PF 5%	50V
C003	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C151	1-126-206-11	ELECT CHIP 100uF 20%	6.3V
C004	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C152	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C005	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C153	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C006	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C156	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C101	1-115-363-11	CERAMIC CHIP 10uF	10V	C158	1-163-019-00	CERAMIC CHIP 0.0068uF 10%	50V
C102	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C160	1-115-363-11	CERAMIC CHIP 10uF	10V
C103	1-115-363-11	CERAMIC CHIP 10uF	10V	C161	1-115-363-11	CERAMIC CHIP 10uF	10V
C104	1-115-363-11	CERAMIC CHIP 10uF	10V	C163	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C105	1-164-232-11	CERAMIC CHIP 0.01uF	50V	C164	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C106	1-163-275-11	CERAMIC CHIP 0.001uF 5%	50V	C167	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C107	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C168	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C108	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C169	1-115-363-11	CERAMIC CHIP 10uF	10V
C109	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V	C171	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C110	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C181	1-126-206-11	ELECT CHIP 100uF 20%	6.3V
C111	1-164-344-11	CERAMIC CHIP 0.068uF 10%	25V	C182	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C112	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V	C183	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C113	1-107-682-11	CERAMIC CHIP 1uF 10%	16V	C184	1-117-962-11	ELECT CHIP 22uF 20%	6.3V
C115	1-164-489-11	CERAMIC CHIP 0.22uF 10%	16V	C185	1-164-611-11	CERAMIC CHIP 0.001uF 10%	500V
C116	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V	C188	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C117	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C189	1-163-989-11	CERAMIC CHIP 0.033uF 10%	25V
C118	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C190	1-126-206-11	ELECT CHIP 100uF 20%	6.3V
C119	1-115-363-11	CERAMIC CHIP 10uF	10V	C191	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C121	1-126-206-11	ELECT CHIP 100uF 20%	6.3V	C192	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C122	1-164-232-11	CERAMIC CHIP 0.01uF	50V	C197	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C123	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C201	1-163-133-00	CERAMIC CHIP 470PF 5%	50V
C124	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C202	1-163-133-00	CERAMIC CHIP 470PF 5%	50V
C127	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C203	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C128	1-164-232-11	CERAMIC CHIP 0.01uF	50V	C205	1-115-363-11	CERAMIC CHIP 10uF	10V
C129	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V	C206	1-115-363-11	CERAMIC CHIP 10uF	10V
C130	1-163-251-11	CERAMIC CHIP 100PF 5%	50V	C207	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C131	1-163-023-00	CERAMIC CHIP 0.015uF 5%	50V	C208	1-115-363-11	CERAMIC CHIP 10uF	10V
C132	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V	C209	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C133	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V	C210	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C134	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C212	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C135	1-163-038-00	CERAMIC CHIP 0.1uF	25V	C213	1-115-363-11	CERAMIC CHIP 10uF	10V
C136	1-126-206-11	ELECT CHIP 100uF 20%	6.3V	C214	1-115-363-11	CERAMIC CHIP 10uF	10V
C139	1-163-229-11	CERAMIC CHIP 12PF 5%	50V	C215	1-163-038-00	CERAMIC CHIP 0.1uF	25V
				C216	1-115-363-11	CERAMIC CHIP 10uF	10V

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C350	1-163-038-00	CERAMIC CHIP 0.1uF	25V	< TRANSISTOR >			
C351	1-163-038-00	CERAMIC CHIP 0.1uF	25V	Q101	8-729-403-35	TRANSISTOR UN5113	
C352	1-126-204-11	ELECT CHIP 47uF	20%	Q102	8-729-026-53	TRANSISTOR 2SA1576A-T106-QR	
C353	1-163-038-00	CERAMIC CHIP 0.1uF	25V	Q103	8-729-402-93	TRANSISTOR UN5214-TX	
C354	1-163-038-00	CERAMIC CHIP 0.1uF	25V	Q104	8-729-402-93	TRANSISTOR UN5214-TX	
C355	1-163-251-11	CERAMIC CHIP 100PF	5%	Q113	8-729-903-10	TRANSISTOR FMW1	
C357	1-164-232-11	CERAMIC CHIP 0.01uF	50V	Q162	8-729-101-07	TRANSISTOR 2SB798-DL	
C358	1-163-251-11	CERAMIC CHIP 100PF	5%	Q163	8-729-403-35	TRANSISTOR UN5113	
C359	1-163-251-11	CERAMIC CHIP 100PF	5%	Q181	8-729-018-75	TRANSISTOR 2SJ278MY	
C360	1-163-251-11	CERAMIC CHIP 100PF	5%	Q182	8-729-017-65	TRANSISTOR 2SK1764KY	
C361	1-163-038-00	CERAMIC CHIP 0.1uF	25V	< RESISTOR >			
C362	1-163-251-11	CERAMIC CHIP 100PF	5%	R100	1-216-121-00	RES, CHIP 1M	5%
C363	1-163-251-11	CERAMIC CHIP 100PF	5%	R101	1-216-047-00	RES, CHIP 820	5%
< CONNECTOR >				R103	1-216-049-11	RES, CHIP 1K	5%
CN101	1-766-508-11	CONNECTOR, FFC/FPC (ZIF) 22P		R104	1-216-073-00	METAL CHIP 10K	5%
CN104	1-766-898-21	HOUSING, CONNECTOR(PC BOARD) 4P		R105	1-216-065-00	RES, CHIP 4.7K	5%
CN107	1-770-072-11	CONNECTOR,(LIF(NON-ZIF)) FFC23P		R106	1-216-133-00	METAL CHIP 3.3M	5%
CN108	1-750-499-21	PIN, CONNECTOR (PC BOARD) 5P		R107	1-216-113-00	METAL CHIP 470K	5%
* CN109	1-750-494-31	PIN, CONNECTOR (PC BOARD) 6P		R110	1-216-073-00	METAL CHIP 10K	5%
< DIODE >				R112	1-216-089-00	RES, CHIP 47K	5%
D101	8-719-988-62	DIODE 1SS355		R113	1-216-049-11	RES, CHIP 1K	5%
D181	8-719-046-86	DIODE F1J6TP		R115	1-216-049-11	RES, CHIP 1K	5%
D183	8-719-046-86	DIODE F1J6TP		R117	1-216-113-00	METAL CHIP 470K	5%
< IC >				R121	1-216-097-00	RES, CHIP 100K	5%
IC101	8-752-080-95	IC CXA2523AR		R125	1-216-049-11	RES, CHIP 1K	5%
IC121	8-752-384-47	IC CXD2652AR		R128	1-216-041-00	METAL CHIP 470	5%
IC124	8-759-536-21	IC MSM51V4400D-10TSK-FS		R131	1-216-073-00	METAL CHIP 10K	5%
IC152	8-759-430-25	IC BH6511FS-E2		R132	1-216-097-00	RES, CHIP 100K	5%
IC171	8-759-428-58	IC XL24C01AF-E2		R133	1-216-117-00	METAL CHIP 680K	5%
IC172	8-759-040-83	IC BA6287F		R134	1-216-049-11	RES, CHIP 1K	5%
IC181	8-759-481-17	IC MC74ACT08DTR2		R135	1-216-061-00	METAL CHIP 3.3K	5%
IC192	8-759-460-72	IC BA033FP-E2		R136	1-216-049-11	RES, CHIP 1K	5%
IC201	8-759-471-38	IC AK4520A-VF-E2		R137	1-216-025-00	RES, CHIP 100	5%
IC316	8-759-530-18	IC M30610MCA-253FP		R140	1-216-029-00	METAL CHIP 150	5%
< COIL >				R142	1-216-073-00	METAL CHIP 10K	5%
L001	1-414-813-11	FERRITE 0uH		R143	1-216-073-00	METAL CHIP 10K	5%
L002	1-414-813-11	FERRITE 0uH		R144	1-216-025-00	RES, CHIP 100	5%
L003	1-414-813-11	FERRITE 0uH		R146	1-216-037-00	METAL CHIP 330	5%
L004	1-414-813-11	FERRITE 0uH		R147	1-216-025-00	RES, CHIP 100	5%
L008	1-500-445-21	FERRITE 0uH		R148	1-216-045-00	METAL CHIP 680	5%
L101	1-414-813-11	FERRITE 0uH		R158	1-216-097-00	RES, CHIP 100K	5%
L102	1-414-813-11	FERRITE 0uH		R159	1-216-097-00	RES, CHIP 100K	5%
L103	1-414-813-11	FERRITE 0uH		R160	1-216-295-00	SHORT 0	
L105	1-414-813-11	FERRITE 0uH		R161	1-216-057-00	METAL CHIP 2.2K	5%
L106	1-414-813-11	FERRITE 0uH		R162	1-216-057-00	METAL CHIP 2.2K	5%
L122	1-414-813-11	FERRITE 0uH		R163	1-216-057-00	METAL CHIP 2.2K	5%
L151	1-412-622-51	INDUCTOR 10uH		R164	1-216-033-00	METAL CHIP 220	5%
L152	1-412-622-51	INDUCTOR 10uH		R165	1-216-097-00	RES, CHIP 100K	5%
L153	1-412-039-51	INDUCTOR CHIP 100uH		R166	1-220-149-11	REGISTER 2.2	10%
L154	1-412-039-51	INDUCTOR CHIP 100uH		R167	1-216-065-00	RES, CHIP 4.7K	5%
L161	1-414-813-11	FERRITE 0uH		R169	1-219-724-11	METAL CHIP 1	1%
L162	1-414-813-11	FERRITE 0uH		R170	1-216-073-00	METAL CHIP 10K	5%
L201	1-414-813-11	FERRITE 0uH		R171	1-216-073-00	METAL CHIP 10K	5%
L301	1-414-813-11	FERRITE 0uH		R175	1-216-061-00	METAL CHIP 3.3K	5%
L351	1-414-813-11	FERRITE 0uH		R177	1-216-061-00	METAL CHIP 3.3K	5%
				R178	1-216-295-00	SHORT 0	

Ref. No.	Part No.	Description			Remark
R179	1-216-091-00	METAL CHIP	56K	5%	1/10W
R180	1-216-073-00	METAL CHIP	10K	5%	1/10W
R181	1-216-073-00	METAL CHIP	10K	5%	1/10W
R182	1-216-089-00	RES, CHIP	47K	5%	1/10W
R183	1-216-089-00	RES, CHIP	47K	5%	1/10W
R184	1-216-073-00	METAL CHIP	10K	5%	1/10W
R188	1-216-073-00	METAL CHIP	10K	5%	1/10W
R189	1-216-073-00	METAL CHIP	10K	5%	1/10W
R190	1-216-073-00	METAL CHIP	10K	5%	1/10W
R195	1-216-295-00	SHORT	0		
R196	1-216-041-00	METAL CHIP	470	5%	1/10W
R197	1-216-041-00	METAL CHIP	470	5%	1/10W
R198	1-216-295-00	SHORT	0		
R199	1-216-295-00	SHORT	0		
R200	1-216-295-00	SHORT	0		
R201	1-219-724-11	METAL CHIP	1	1%	1/4W
R202	1-216-041-00	METAL CHIP	470	5%	1/10W
R203	1-216-025-00	RES, CHIP	100	5%	1/10W
R204	1-216-025-00	RES, CHIP	100	5%	1/10W
R210	1-216-041-00	METAL CHIP	470	5%	1/10W
R330	1-216-073-00	METAL CHIP	10K	5%	1/10W
R331	1-216-073-00	METAL CHIP	10K	5%	1/10W
R332	1-216-073-00	METAL CHIP	10K	5%	1/10W
R333	1-216-073-00	METAL CHIP	10K	5%	1/10W
R351	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R352	1-216-065-00	RES, CHIP	4.7K	5%	1/10W
R353	1-216-295-00	SHORT	0		
R361	1-216-097-00	RES, CHIP	100K	5%	1/10W
R362	1-216-025-00	RES, CHIP	100	5%	1/10W
R363	1-216-097-00	RES, CHIP	100K	5%	1/10W
R366	1-216-097-00	RES, CHIP	100K	5%	1/10W
R367	1-216-097-00	RES, CHIP	100K	5%	1/10W
R379	1-216-073-00	METAL CHIP	10K	5%	1/10W
R380	1-216-073-00	METAL CHIP	10K	5%	1/10W
R381	1-216-073-00	METAL CHIP	10K	5%	1/10W
R382	1-216-073-00	METAL CHIP	10K	5%	1/10W
R383	1-216-073-00	METAL CHIP	10K	5%	1/10W
R384	1-216-073-00	METAL CHIP	10K	5%	1/10W
R385	1-216-073-00	METAL CHIP	10K	5%	1/10W
R386	1-216-073-00	METAL CHIP	10K	5%	1/10W
R391	1-216-073-00	METAL CHIP	10K	5%	1/10W
R393	1-216-073-00	METAL CHIP	10K	5%	1/10W
R400	1-216-073-00	METAL CHIP	10K	5%	1/10W
R420	1-216-097-00	RES, CHIP	100K	5%	1/10W
R421	1-216-097-00	RES, CHIP	100K	5%	1/10W
R422	1-216-097-00	RES, CHIP	100K	5%	1/10W
R423	1-216-097-00	RES, CHIP	100K	5%	1/10W
R424	1-216-097-00	RES, CHIP	100K	5%	1/10W
R425	1-216-097-00	RES, CHIP	100K	5%	1/10W
R429	1-216-097-00	RES, CHIP	100K	5%	1/10W
R430	1-216-097-00	RES, CHIP	100K	5%	1/10W
R431	1-216-097-00	RES, CHIP	100K	5%	1/10W
R433	1-216-097-00	RES, CHIP	100K	5%	1/10W
R434	1-216-097-00	RES, CHIP	100K	5%	1/10W
R435	1-216-097-00	RES, CHIP	100K	5%	1/10W
R436	1-216-097-00	RES, CHIP	100K	5%	1/10W
R437	1-216-097-00	RES, CHIP	100K	5%	1/10W
R438	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R439	1-216-073-00	METAL CHIP	10K	5%	1/10W
R440	1-216-073-00	METAL CHIP	10K	5%	1/10W
R441	1-216-097-00	RES, CHIP	100K	5%	1/10W
R442	1-216-097-00	RES, CHIP	100K	5%	1/10W
R443	1-216-097-00	RES, CHIP	100K	5%	1/10W
R444	1-216-097-00	RES, CHIP	100K	5%	1/10W
R445	1-216-097-00	RES, CHIP	100K	5%	1/10W
R446	1-216-097-00	RES, CHIP	100K	5%	1/10W
R447	1-216-097-00	RES, CHIP	100K	5%	1/10W
R448	1-216-097-00	RES, CHIP	100K	5%	1/10W
R449	1-216-097-00	RES, CHIP	100K	5%	1/10W
R451	1-216-097-00	RES, CHIP	100K	5%	1/10W
R452	1-216-097-00	RES, CHIP	100K	5%	1/10W
R453	1-216-097-00	RES, CHIP	100K	5%	1/10W
R454	1-216-097-00	RES, CHIP	100K	5%	1/10W
R455	1-216-097-00	RES, CHIP	100K	5%	1/10W
R456	1-216-097-00	RES, CHIP	100K	5%	1/10W
R457	1-216-097-00	RES, CHIP	100K	5%	1/10W
R458	1-216-097-00	RES, CHIP	100K	5%	1/10W
R460	1-216-073-00	METAL CHIP	10K	5%	1/10W
R463	1-216-073-00	METAL CHIP	10K	5%	1/10W
R502	1-216-295-00	SHORT	0		
R504	1-216-295-00	SHORT	0		
R602	1-216-025-00	RES, CHIP	100	5%	1/10W
R603	1-216-025-00	RES, CHIP	100	5%	1/10W
R604	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R605	1-216-025-00	RES, CHIP	100	5%	1/10W
R606	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R607	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R608	1-216-025-00	RES, CHIP	100	5%	1/10W
R617	1-216-025-00	RES, CHIP	100	5%	1/10W
R618	1-216-025-00	RES, CHIP	100	5%	1/10W
R619	1-216-025-00	RES, CHIP	100	5%	1/10W
R621	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R622	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R623	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R624	1-216-073-00	METAL CHIP	10K	5%	1/10W
R995	1-216-295-00	SHORT	0		
R2000	1-216-025-00	RES, CHIP	100	5%	1/10W
R2002	1-414-813-11	FERRITE	0uH		
R2003	1-216-295-00	SHORT	0		
< VIBRATOR >					
X100	1-579-870-21	VIBRATOR, CRYSTAL (22.5792MHz)			
X302	1-767-670-11	VIBRATOR, CERAMIC (7MHz)			

*	1-670-367-11	DISC SW BOARD			

< CONNECTOR >					
* CNP14	1-568-826-11	SOCKET, CONNECTOR 7P			
< SWITCH >					
S1	1-771-225-12	SWITCH, LEVER (MD 1 IN DETECT)			
S3	1-771-225-12	SWITCH, LEVER (MD 2 IN DETECT)			
S5	1-771-225-12	SWITCH, LEVER (MD 3 IN DETECT)			

ELEVATOR RELAY

HEAD SW

LED

MAIN

Ref. No.	Part No.	Description	Remark				Ref. No.	Part No.	Description	Remark			
*	1-667-394-14	ELEVATOR RELAY BOARD *****					D803	8-719-064-55	LED SEC1803C (MD 3) *****				
		< CAPACITOR >					*	A-4407-881-A	MAIN BOARD, COMPLETE *****				
C1	1-126-382-11	ELECT	100uF	20%	6.3V								
C2	1-161-494-00	CERAMIC	0.022uF		25V								
C3	1-161-494-00	CERAMIC	0.022uF		25V								
C5	1-115-871-11	ELECT	1uF	20%	50V								
		< CONNECTOR >					BT601	1-110-489-11	DOUBLE LAYER	1F	5.5V		
							C301	1-162-306-11	CERAMIC	0.01uF	20%	16V	
* CNP11	1-568-832-11	SOCKET, CONNECTOR 13P					C302	1-126-964-11	ELECT	10uF	20%	50V	
* CNP16	1-568-848-11	SOCKET, CONNECTOR 5P					C303	1-162-306-11	CERAMIC	0.01uF	20%	16V	
* CNP17	1-568-848-11	SOCKET, CONNECTOR 5P					C304	1-162-306-11	CERAMIC	0.01uF	20%	16V	
		< PHOTO INTERRUPTER >					C305	1-162-306-11	CERAMIC	0.01uF	20%	16V	
							C306	1-164-159-11	CERAMIC	0.1uF		50V	
D1	8-749-012-33	PHOTO INTERRUPTER GP1S94 (ELEVATOR POSITION SENSOR)					C307	1-164-159-11	CERAMIC	0.1uF		50V	
D2	8-749-012-33	PHOTO INTERRUPTER GP1S94 (ELEVATOR POSITION SENSOR)					C308	1-164-159-11	CERAMIC	0.1uF		50V	
		< TRANSISTOR >					C309	1-104-665-11	ELECT	100uF	20%	10V	
							C310	1-162-306-11	CERAMIC	0.01uF	20%	16V	
Q1	8-729-119-76	TRANSISTOR 2SA1175-HFE					C311	1-164-159-11	CERAMIC	0.1uF		50V	
Q2	8-729-119-76	TRANSISTOR 2SA1175-HFE					C312	1-164-159-11	CERAMIC	0.1uF		50V	
Q3	8-729-119-76	TRANSISTOR 2SA1175-HFE					C313	1-164-159-11	CERAMIC	0.1uF		50V	
		< RESISTOR >					C314	1-126-964-11	ELECT	10uF	20%	50V	
							C315	1-164-159-11	CERAMIC	0.1uF		50V	
R1	1-249-412-11	CARBON 390 5% 1/4W					C316	1-162-282-31	CERAMIC	100PF	10%	50V	
R2	1-249-412-11	CARBON 390 5% 1/4W					C317	1-126-964-11	ELECT	10uF	20%	50V	
R3	1-249-433-11	CARBON 22K 5% 1/4W					C318	1-162-282-31	CERAMIC	100PF	10%	50V	
R4	1-249-425-11	CARBON 4.7K 5% 1/4W					C319	1-162-282-31	CERAMIC	100PF	10%	50V	
R5	1-249-437-11	CARBON 47K 5% 1/4W					C320	1-126-964-11	ELECT	10uF	20%	50V	
		< SWITCH >					C321	1-164-159-11	CERAMIC	0.1uF		50V	
							C322	1-126-964-11	ELECT	10uF	20%	50V	
S8	1-771-225-12	SWITCH, LEVER (HOME POSITION DETECT)					C323	1-162-306-11	CERAMIC	0.01uF	20%	16V	
S9	1-771-225-12	SWITCH, LEVER (RESET)					C324	1-162-306-11	CERAMIC	0.01uF	20%	16V	
*****						C328	1-126-964-11	ELECT	10uF	20%	50V		
		< CONNECTOR >					C329	1-164-159-11	CERAMIC	0.1uF		50V	
* CNP18	1-564-705-11	PIN, CONNECTOR (SMALL TYPE) 3P					C330	1-104-665-11	ELECT	100uF	20%	10V	
		< SWITCH >					C331	1-164-159-11	CERAMIC	0.1uF		50V	
							C332	1-126-059-11	ELECT	10uF	20%	50V	
S6	1-762-987-11	SWITCH, PUSH (OVER WRITE HEAD UP DETECT)					C333	1-126-059-11	ELECT	10uF	20%	50V	
S7	1-762-987-11	SWITCH, PUSH (OVER WRITE HEAD DOWN DETECT)					C334	1-126-059-11	ELECT	10uF	20%	50V	
*****						C335	1-126-059-11	ELECT	10uF	20%	50V		
		< DIODE >					C338	1-126-948-11	ELECT	100uF	20%	35V	
							C340	1-126-964-11	ELECT	10uF	20%	50V	
							C349	1-126-964-11	ELECT	10uF	20%	50V	
							C350	1-126-947-11	ELECT	47uF	20%	35V	
							C352	1-115-364-11	ELECT	22000uF	20%	16V	
							C353	1-126-968-11	ELECT	100uF	20%	50V	
							C356	1-126-941-11	ELECT	470uF	20%	25V	
							C357	1-126-941-11	ELECT	470uF	20%	25V	
							C358	1-126-948-11	ELECT	100uF	20%	35V	
							C359	1-126-948-11	ELECT	100uF	20%	35V	
							C360	1-111-082-11	ELECT	100uF	20%	35V	
							C361	1-111-082-11	ELECT	100uF	20%	35V	
							C362	1-164-159-11	CERAMIC	0.1uF		50V	
							C363	1-164-159-11	CERAMIC	0.1uF		50V	
							C364	1-164-159-11	CERAMIC	0.1uF		50V	
D801	8-719-064-55	LED SEC1803C (MD 1)					C365	1-162-306-11	CERAMIC	0.01uF	20%	16V	
D802	8-719-064-55	LED SEC1803C (MD 2)					C366	1-164-159-11	CERAMIC	0.1uF		50V	

MAIN

Ref. No.	Part No.	Description	Remark
C371	1-126-059-11	ELECT 10uF 20% 50V	
C372	1-126-059-11	ELECT 10uF 20% 50V	
C373	1-164-159-11	CERAMIC 0.1uF 50V	
C374	1-162-290-31	CERAMIC 470PF 10% 50V	
C375	1-162-290-31	CERAMIC 470PF 10% 50V	
C376	1-162-290-31	CERAMIC 470PF 10% 50V	
C377	1-162-290-31	CERAMIC 470PF 10% 50V	
C378	1-162-282-31	CERAMIC 100PF 10% 50V	
C379	1-164-159-11	CERAMIC 0.1uF 50V	
C382	1-162-282-31	CERAMIC 100PF 10% 50V	
C385	1-162-282-31	CERAMIC 100PF 10% 50V	
C386	1-126-940-11	ELECT 330uF 20% 25V	
C387	1-126-940-11	ELECT 330uF 20% 25V	
C432	1-162-306-11	CERAMIC 0.01uF 20% 16V	
C433	1-126-960-11	ELECT 1uF 20% 50V	
C611	1-126-924-11	ELECT 330uF 20% 10V	
C612	1-126-964-11	ELECT 10uF 20% 50V	
C613	1-126-924-11	ELECT 330uF 20% 10V	
C615	1-126-964-11	ELECT 10uF 20% 50V	
C621	1-164-159-11	CERAMIC 0.1uF 50V	
C622	1-126-960-11	ELECT 1uF 20% 50V	
C623	1-126-964-11	ELECT 10uF 20% 50V	
C624	1-164-159-11	CERAMIC 0.1uF 50V	
C625	1-104-665-11	ELECT 100uF 20% 10V	
< CONNECTOR >			
* CN301	1-568-830-11	SOCKET, CONNECTOR 11P	
* CN302	1-568-832-11	SOCKET, CONNECTOR 13P	
* CN303	1-568-836-11	SOCKET, CONNECTOR 17P	
* CN304	1-568-839-11	SOCKET, CONNECTOR 23P	
CN305	1-770-640-11	CONNECTOR, FFC/FPC 9P	
* CN306	1-564-708-11	PIN, CONNECTOR (SMALL TYPE) 6P	
* CN308	1-569-624-11	SOCKET, CONNECTOR 17P	(SYSTEM CONTROL)
< DIODE >			
D302	8-719-911-19	DIODE 1SS119	
D303	8-719-200-82	DIODE 11ES2	
D304	8-719-200-82	DIODE 11ES2	
D305	8-719-200-82	DIODE 11ES2	
D309	8-719-069-68	DIODE RD5.6F-T7	
D310	8-719-934-25	DIODE HZS33-1L	
D312	8-719-200-82	DIODE 11ES2	
D313	8-719-200-82	DIODE 11ES2	
D314	8-719-200-82	DIODE 11ES2	
D315	8-719-200-82	DIODE 11ES2	
D316	8-719-200-82	DIODE 11ES2	
D319	8-719-200-82	DIODE 11ES2	
D320	8-719-200-82	DIODE 11ES2	
D321	8-719-200-82	DIODE 11ES2	
D322	8-719-200-82	DIODE 11ES2	
D323	8-719-200-82	DIODE 11ES2	
D324	8-719-200-82	DIODE 11ES2	
D325	8-719-200-82	DIODE 11ES2	
D326	8-719-911-19	DIODE 1SS119	
D327	8-719-911-19	DIODE 1SS119	
D328	8-719-911-19	DIODE 1SS119	
D329	8-719-200-82	DIODE 11ES2	

Ref. No.	Part No.	Description	Remark
D330	8-719-200-82	DIODE 11ES2	
D331	8-719-200-82	DIODE 11ES2	
D332	8-719-200-82	DIODE 11ES2	
D340	8-719-911-19	DIODE 1SS119	
D341	8-719-911-19	DIODE 1SS119	
D342	8-719-911-19	DIODE 1SS119	
D343	8-719-911-19	DIODE 1SS119	
< GROUND TERMINAL >			
EP301	1-537-771-21	TERMINAL BOARD, GROUND	
< FERRITE BEAD >			
FB301	1-410-396-41	INDUCTOR 0.45UH	
FB302	1-410-396-41	INDUCTOR 0.45UH	
FB303	1-410-396-41	INDUCTOR 0.45UH	
FB304	1-410-396-41	INDUCTOR 0.45UH	
FB305	1-410-396-41	INDUCTOR 0.45UH	
FB306	1-410-397-21	FERRITE BEAD INDUCTOR	
FB307	1-410-397-21	FERRITE BEAD INDUCTOR	
< IC >			
IC301	8-749-012-70	IC GP1F38R (OPTICAL, DIGITAL IN, VIDEO 2) (EX880)	
IC302	8-749-012-70	IC GP1F38R (OPTICAL, DIGITAL IN, LD/DVD) (MS717)	
IC303	8-749-012-70	IC GP1F38R (OPTICAL, DIGITAL IN, CD PLAYER)	
IC304	8-759-917-18	IC SN74HCU04AN	
IC305	8-759-534-94	IC uPD78078GF-082-3BA	
IC306	8-759-921-17	IC SN74HC153AN	
IC308	8-759-962-08	IC BA6208	
IC309	8-759-962-08	IC BA6208	
IC310	8-759-158-62	IC TA78057S	
IC312	8-759-233-65	IC TC74HCT04AP	
IC314	8-759-445-59	IC BA033T	
IC315	8-759-158-62	IC TA78057S	
IC316	8-759-165-82	IC PST600E-T	
IC317	8-759-481-02	IC M62016L	
IC318	8-759-634-51	IC M5218AP	
IC319	8-759-239-14	IC TA78L05S	
< JACK >			
J101	1-770-720-11	JACK, PIN 4P (ANALOG IN/OUT)	
< COIL >			
L301	1-408-080-00	INDUCTOR 100uH	
< TRANSISTOR >			
Q301	8-729-900-80	TRANSISTOR DTC114ES	
Q402	8-729-900-80	TRANSISTOR DTC114ES	
Q503	8-729-422-57	TRANSISTOR UN4111	
Q504	8-729-422-57	TRANSISTOR UN4111	
Q505	8-729-422-57	TRANSISTOR UN4111	
Q521	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q522	8-729-140-97	TRANSISTOR 2SB734-34	

Ref. No.	Part No.	Description				Remark	Ref. No.	Part No.	Description				Remark
< RESISTOR >							R357	1-249-417-11	CARBON	1K	5%	1/4W	
							R358	1-249-417-11	CARBON	1K	5%	1/4W	
							R359	1-249-417-11	CARBON	1K	5%	1/4W	
R301	1-249-417-11	CARBON	1K	5%	1/4W		R360	1-249-425-11	CARBON	4.7K	5%	1/4W	
R302	1-249-417-11	CARBON	1K	5%	1/4W		R361	1-249-425-11	CARBON	4.7K	5%	1/4W	
R303	1-249-417-11	CARBON	1K	5%	1/4W								
R304	1-249-417-11	CARBON	1K	5%	1/4W		R362	1-249-425-11	CARBON	4.7K	5%	1/4W	
R305	1-249-417-11	CARBON	1K	5%	1/4W		R363	1-249-425-11	CARBON	4.7K	5%	1/4W	
							R364	1-249-429-11	CARBON	10K	5%	1/4W	
R306	1-247-807-31	CARBON	100	5%	1/4W		R365	1-249-429-11	CARBON	10K	5%	1/4W	
R307	1-247-807-31	CARBON	100	5%	1/4W		R366	1-249-429-11	CARBON	10K	5%	1/4W	
R308	1-247-807-31	CARBON	100	5%	1/4W								
R309	1-249-417-11	CARBON	1K	5%	1/4W		R367	1-249-429-11	CARBON	10K	5%	1/4W	
R310	1-247-843-11	CARBON	3.3K	5%	1/4W		R368	1-249-429-11	CARBON	10K	5%	1/4W	
							R369	1-249-429-11	CARBON	10K	5%	1/4W	
R311	1-247-843-11	CARBON	3.3K	5%	1/4W		R370	1-249-429-11	CARBON	10K	5%	1/4W	
R312	1-247-843-11	CARBON	3.3K	5%	1/4W		R371	1-249-393-11	CARBON	10	5%	1/4W	
R313	1-247-843-11	CARBON	3.3K	5%	1/4W								
R314	1-249-429-11	CARBON	10K	5%	1/4W		R376	1-249-429-11	CARBON	10K	5%	1/4W	
R315	1-249-417-11	CARBON	1K	5%	1/4W		R377	1-249-429-11	CARBON	10K	5%	1/4W	
							R378	1-249-425-11	CARBON	4.7K	5%	1/4W	
R316	1-249-417-11	CARBON	1K	5%	1/4W		R379	1-249-413-11	CARBON	470	5%	1/4W	
R317	1-249-417-11	CARBON	1K	5%	1/4W		R380	1-249-413-11	CARBON	470	5%	1/4W	
R318	1-249-417-11	CARBON	1K	5%	1/4W								
R319	1-247-895-00	CARBON	470K	5%	1/4W		R381	1-247-843-11	CARBON	3.3K	5%	1/4W	
R320	1-247-895-00	CARBON	470K	5%	1/4W		R382	1-249-441-11	CARBON	100K	5%	1/4W	
							R383	1-249-427-11	CARBON	6.8K	5%	1/4W	
R321	1-247-895-00	CARBON	470K	5%	1/4W		R384	1-249-393-11	CARBON	10	5%	1/4W	
R322	1-249-417-11	CARBON	1K	5%	1/4W		R385	1-249-393-11	CARBON	10	5%	1/4W	
R323	1-249-417-11	CARBON	1K	5%	1/4W								
R324	1-249-429-11	CARBON	10K	5%	1/4W		R392	1-249-417-11	CARBON	1K	5%	1/4W	
R325	1-249-429-11	CARBON	10K	5%	1/4W		R393	1-249-417-11	CARBON	1K	5%	1/4W	
							R394	1-249-413-11	CARBON	470	5%	1/4W	
R326	1-249-417-11	CARBON	1K	5%	1/4W		R395	1-249-413-11	CARBON	470	5%	1/4W	
R327	1-249-417-11	CARBON	1K	5%	1/4W		R396	1-249-437-11	CARBON	47K	5%	1/4W	
R328	1-249-417-11	CARBON	1K	5%	1/4W								
R329	1-249-417-11	CARBON	1K	5%	1/4W		R397	1-249-437-11	CARBON	47K	5%	1/4W	
R330	1-249-417-11	CARBON	1K	5%	1/4W		R398	1-249-417-11	CARBON	1K	5%	1/4W	
							R399	1-249-417-11	CARBON	1K	5%	1/4W	
R331	1-249-417-11	CARBON	1K	5%	1/4W		R400	1-249-441-11	CARBON	100K	5%	1/4W	
R332	1-247-807-31	CARBON	100	5%	1/4W		R401	1-249-441-11	CARBON	100K	5%	1/4W	
R333	1-247-807-31	CARBON	100	5%	1/4W								
R334	1-249-429-11	CARBON	10K	5%	1/4W		R402	1-249-427-11	CARBON	6.8K	5%	1/4W	
R335	1-249-437-11	CARBON	47K	5%	1/4W		R403	1-249-429-11	CARBON	10K	5%	1/4W	
							R407	1-249-417-11	CARBON	1K	5%	1/4W	
R336	1-249-437-11	CARBON	47K	5%	1/4W		R409	1-249-417-11	CARBON	1K	5%	1/4W	
R337	1-247-903-00	CARBON	1M	5%	1/4W		R410	1-249-417-11	CARBON	1K	5%	1/4W	
R338	1-249-437-11	CARBON	47K	5%	1/4W								
R339	1-247-807-31	CARBON	100	5%	1/4W		R411	1-249-417-11	CARBON	1K	5%	1/4W	
R340	1-247-807-31	CARBON	100	5%	1/4W		R416	1-249-417-11	CARBON	1K	5%	1/4W	
							R420	1-249-433-11	CARBON	22K	5%	1/4W	
R341	1-247-807-31	CARBON	100	5%	1/4W		R421	1-249-433-11	CARBON	22K	5%	1/4W	
R342	1-247-807-31	CARBON	100	5%	1/4W		R422	1-249-437-11	CARBON	47K	5%	1/4W	
R343	1-247-807-31	CARBON	100	5%	1/4W								
R344	1-249-429-11	CARBON	10K	5%	1/4W		R423	1-249-437-11	CARBON	47K	5%	1/4W	
R345	1-249-429-11	CARBON	10K	5%	1/4W		R433	1-249-429-11	CARBON	10K	5%	1/4W	
							R475	1-249-417-11	CARBON	1K	5%	1/4W	
R346	1-249-429-11	CARBON	10K	5%	1/4W		R621	1-249-429-11	CARBON	10K	5%	1/4W	
R347	1-249-429-11	CARBON	10K	5%	1/4W		R622	1-249-417-11	CARBON	1K	5%	1/4W	
R348	1-249-429-11	CARBON	10K	5%	1/4W								
R349	1-249-429-11	CARBON	10K	5%	1/4W		R623	1-249-429-11	CARBON	10K	5%	1/4W	
R350	1-247-843-11	CARBON	3.3K	5%	1/4W		R624	1-249-417-11	CARBON	1K	5%	1/4W	
							R625	1-249-417-11	CARBON	1K	5%	1/4W	
R352	1-249-417-11	CARBON	1K	5%	1/4W		< VIBRATOR >						
R353	1-249-417-11	CARBON	1K	5%	1/4W								
R354	1-249-417-11	CARBON	1K	5%	1/4W								
R355	1-249-417-11	CARBON	1K	5%	1/4W		X402	1-579-233-11	VIBRATOR, CERAMIC (5MHz)				
R356	1-249-417-11	CARBON	1K	5%	1/4W		*****						

MECH RELAY	MOTOR RELAY	PANEL (FL)	PANEL (L)
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Ref. No.	Part No.	Description	Remark
*	1-667-396-14	MECH RELAY BOARD *****	
		< CONNECTOR >	
CNP12	1-695-374-31	CONNECTOR, FFC/FPC 13P	
CNP13	1-770-524-31	CONNECTOR, FFC/FPC 17P	
CNP15	1-695-368-31	CONNECTOR, FFC/FPC 7P	

*	1-667-633-14	MOTOR RELAY BOARD *****	
		< CAPACITOR >	
C4	1-101-005-00	CERAMIC 22000PF	50V
		< CONNECTOR >	
* CNP19	1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P	

*	A-4724-097-A	PANEL (FL) BOARD, COMPLETE *****	
*	4-921-941-01	CUSHION (FL)	
*	4-986-764-01	HOLDER (FL)	
		< CAPACITOR >	
C702	1-164-004-11	CERAMIC CHIP 0.1uF	10% 25V
C703	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C704	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C705	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C706	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C707	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C708	1-163-033-00	CERAMIC CHIP 0.022uF	50V
C709	1-163-033-00	CERAMIC CHIP 0.022uF	50V
C710	1-163-033-00	CERAMIC CHIP 0.022uF	50V
C751	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
C752	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
C753	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
C754	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
C755	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
C756	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
C757	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
C758	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
C759	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
C760	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
C761	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
C762	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
C763	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
C764	1-163-001-11	CERAMIC CHIP 220PF	10% 50V
		< CONNECTOR >	
CN704	1-779-934-11	CONNECTOR, FFC/FPC 9P	
		< FLUORESCENT INDICATOR TUBE >	
FL701	1-517-622-11	INDICATOR TUBE, FLUORESCENT	
		< IC >	
IC701	8-759-297-23	IC M66004M8FP	

Ref. No.	Part No.	Description	Remark
		< RESISTOR >	
R701	1-216-025-00	RES, CHIP	100 5% 1/10W
R702	1-216-025-00	RES, CHIP	100 5% 1/10W
R703	1-216-025-00	RES, CHIP	100 5% 1/10W
R704	1-216-025-00	RES, CHIP	100 5% 1/10W
R705	1-216-083-00	METAL CHIP	27K 5% 1/10W
R713	1-216-073-00	METAL CHIP	10K 5% 1/10W

*	A-4724-095-A	PANEL (L) BOARD, COMPLETE *****	
		< CONNECTOR >	
CN307	1-564-722-11	PIN, CONNECTOR (SMALL TYPE) 6P	
* CN705	1-568-832-11	SOCKET, CONNECTOR 13P	
		< DIODE >	
D701	8-719-046-44	LED SEL5221S (MONO)	
D702	8-719-046-39	LED SEL5821A-TH15 (ANALOG IN)	
D703	8-719-046-39	LED SEL5821A-TH15 (DIGITAL IN)	
D704	8-719-046-44	LED SEL5221S (CD SYNC)	
D705	8-719-046-44	LED SEL5221S (REC IT)	
D712	8-719-046-43	LED SEL5421E-TP15 (CONTINUE)	
D713	8-719-046-43	LED SEL5421E-TP15 (SHUFFLE)	
D714	8-719-046-43	LED SEL5421E-TP15 (PROGRAM)	
		< RESISTOR >	
R700	1-216-029-00	METAL CHIP	150 5% 1/10W
R707	1-216-041-00	METAL CHIP	470 5% 1/10W
R708	1-216-045-00	METAL CHIP	680 5% 1/10W
R709	1-216-049-11	RES, CHIP	1K 5% 1/10W
R710	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
R711	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
R712	1-216-065-00	RES, CHIP	4.7K 5% 1/10W
R715	1-216-029-00	METAL CHIP	150 5% 1/10W
R716	1-216-075-00	METAL CHIP	12K 5% 1/10W
R727	1-216-041-00	METAL CHIP	470 5% 1/10W
R755	1-216-029-00	METAL CHIP	150 5% 1/10W
R756	1-216-029-00	METAL CHIP	150 5% 1/10W
R757	1-216-033-00	METAL CHIP	220 5% 1/10W
		< VARIABLE RESISTOR >	
RV801	1-225-533-11	RES, VAR, CARBON 20K/20K (REC LEVEL)	
		< SWITCH >	
S700	1-762-875-21	SWITCH, KEYBOARD (DISPLAY)	
S701	1-762-875-21	SWITCH, KEYBOARD (PROGRAM)	
S702	1-762-875-21	SWITCH, KEYBOARD (SHUFFLE)	
S703	1-762-875-21	SWITCH, KEYBOARD (CONTINUE)	
S704	1-762-875-21	SWITCH, KEYBOARD (DISC SKIP)	
S705	1-762-875-21	SWITCH, KEYBOARD (REPEAT)	
S706	1-762-875-21	SWITCH, KEYBOARD (REC IT)	
S707	1-762-875-21	SWITCH, KEYBOARD (CD SYNC)	
S708	1-762-875-21	SWITCH, KEYBOARD (◀◀, ←)	
S709	1-762-875-21	SWITCH, KEYBOARD (▶▶, →)	

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark
*	A-4724-096-A	PANEL (R) BOARD, COMPLETE *****						< SWITCH >	
		< CAPACITOR >				S661	1-475-421-11	ENCODER, ROTARY (I◀◀ SELECTOR ▶▶I)	
C661	1-163-011-11	CERAMIC CHIP 0.0015uF 10% 50V				S711	1-762-875-21	SWITCH, KEYBOARD (MD 1)	
C662	1-163-011-11	CERAMIC CHIP 0.0015uF 10% 50V				S712	1-762-875-21	SWITCH, KEYBOARD (MD 2)	
C711	1-126-154-11	ELECT 47uF 20% 6.3V				S713	1-762-875-21	SWITCH, KEYBOARD (MD 3)	
C712	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V				S716	1-762-875-21	SWITCH, KEYBOARD (▶◻◻)	
C713	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V				S718	1-762-875-21	SWITCH, KEYBOARD (ENTER/YES)	
		< CONNECTOR >				S721	1-762-875-21	SWITCH, KEYBOARD (REC 1)	
* CN702	1-568-830-11	SOCKET, CONNECTOR 11P				S722	1-762-875-21	SWITCH, KEYBOARD (REC 2)	
CN703	1-784-176-11	SOCKET, CONNECTOR 4P				S723	1-762-875-21	SWITCH, KEYBOARD (REC 3)	
		< DIODE >				S726	1-762-875-21	SWITCH, KEYBOARD (◼)	
D708	8-719-056-13	LED SML72423C-TP4 (MD 1)				S727	1-762-875-21	SWITCH, KEYBOARD (≡)	
D709	8-719-056-13	LED SML72423C-TP4 (MD 2)				S728	1-762-875-21	SWITCH, KEYBOARD (MENU/NO)	
D710	8-719-056-13	LED SML72423C-TP4 (MD 3)				*****			
D711	8-719-056-13	LED SML72423C-TP4 (▶◻◻)				*	1-667-392-13	SW BOARD *****	
		< IC >						< CONNECTOR >	
IC702	8-759-183-47	IC M66310FP				* CN206	1-750-494-31	PIN, CONNECTOR (PC BOARD) 6P	
		< RESISTOR >						< SWITCH >	
R717	1-216-029-00	METAL CHIP 150 5% 1/10W				S681	1-572-467-61	SWITCH, PUSH (1 KEY) (LIMIT-IN)	
R718	1-216-029-00	METAL CHIP 150 5% 1/10W				S682	1-692-377-31	SWITCH, PUSH (1 KEY) (REFLECT)	
R719	1-216-029-00	METAL CHIP 150 5% 1/10W				S683	1-692-847-21	SWITCH, PUSH (1 KEY) (PROTECT)	
R720	1-216-049-11	RES, CHIP 1K 5% 1/10W				*****			
R721	1-216-025-00	RES, CHIP 100 5% 1/10W						MISCELLANEOUS *****	
R722	1-216-025-00	RES, CHIP 100 5% 1/10W				4	1-783-038-11	WIRE (FLAT TYPE) (17 CORE)	
R723	1-216-025-00	RES, CHIP 100 5% 1/10W				7	1-783-037-11	WIRE (FLAT TYPE) (23 CORE)	
R724	1-216-073-00	METAL CHIP 10K 5% 1/10W				55	1-668-027-13	FLEXIBLE BOARD	
R725	1-216-073-00	METAL CHIP 10K 5% 1/10W				67	1-783-040-11	WIRE (FLAT TYPE) (13 CORE) (160mm)	
R726	1-216-073-00	METAL CHIP 10K 5% 1/10W				70	1-783-041-11	WIRE (FLAT TYPE) (9 CORE)	
R731	1-216-033-00	METAL CHIP 220 5% 1/10W				73	1-783-039-11	WIRE (FLAT TYPE) (11 CORE)	
R732	1-216-033-00	METAL CHIP 220 5% 1/10W				110	1-782-910-11	WIRE (FLAT TYPE) (7 CORE)	
R733	1-216-033-00	METAL CHIP 220 5% 1/10W				164	1-667-955-11	FLEXIBLE BOARD	
R734	1-216-033-00	METAL CHIP 220 5% 1/10W				169	1-782-909-11	WIRE (FLAT TYPE) (13 CORE) (185mm)	
R735	1-216-033-00	METAL CHIP 220 5% 1/10W				△203	8-583-028-02	OPTICAL PICK-UP KMS-260AJ1N	
R736	1-216-033-00	METAL CHIP 220 5% 1/10W				HR901	1-500-489-11	HEAD, OVER WRITE	
R737	1-216-033-00	METAL CHIP 220 5% 1/10W				M901	A-4672-241-A	MOTOR ASSY, SPINDLE	
R738	1-216-033-00	METAL CHIP 220 5% 1/10W				M902	A-4672-240-A	MOTOR ASSY, SLED	
R741	1-216-041-00	METAL CHIP 470 5% 1/10W				M903	1-698-874-11	MOTOR, DC (LOADING)	
R742	1-216-045-00	METAL CHIP 680 5% 1/10W				M904	1-698-874-11	MOTOR, DC (ELEVATOR UP/DOWN)	
R743	1-216-049-11	RES, CHIP 1K 5% 1/10W				M905	X-4949-160-1	MOTOR (HEAD) ASSY (HEAD, OVER WRITE UP/DOWN)	
R744	1-216-053-00	METAL CHIP 1.5K 5% 1/10W				S10	1-762-952-11	SWITCH, PUSH (1 KEY) (LOADING IN DETECT)	
R745	1-216-057-00	METAL CHIP 2.2K 5% 1/10W				S11	1-762-952-11	SWITCH, PUSH (1 KEY) (LOADING OUT DETECT)	
R746	1-216-065-00	RES, CHIP 4.7K 5% 1/10W				*****			
R747	1-216-075-00	METAL CHIP 12K 5% 1/10W						*****	
R748	1-216-041-00	METAL CHIP 470 5% 1/10W						HARDWARE LIST *****	
R749	1-216-045-00	METAL CHIP 680 5% 1/10W				#1	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
R750	1-216-049-11	RES, CHIP 1K 5% 1/10W				#2	7-685-871-01	SCREW +BVTT 3X6 (S)	
R751	1-216-053-00	METAL CHIP 1.5K 5% 1/10W				#3	7-685-650-91	SCREW +BVTP 3X16 TYPE2 TT(B)	
R752	1-216-057-00	METAL CHIP 2.2K 5% 1/10W				#5	7-685-103-19	SCREW +P 2X5 TYPE2 NON-SLIT	
R753	1-216-065-00	RES, CHIP 4.7K 5% 1/10W				#6	7-685-861-01	SCREW +BVTT 2.6X5 (S)	

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

MDS-EX880/MS717

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
#7	7-627-553-17	PRECISION SCREW +P 2X2 TYPE3	
#8	7-624-106-04	STOP RING 3.0, TYPE-E	
#9	7-624-102-04	STOP RING 1.5, TYPE-E	
#10	7-685-853-04	SCREW +BVTT 2X6 (S)	
#11	7-621-772-10	SCREW +B 2X4	
#12	7-627-852-28	+P 1.7X3	
#13	7-627-000-00	SCREW, PRECISION +P 1.7X2.2 TYPE3	
#14	7-627-852-08	SCREW, PRECISION +P 1.7X2.5	
#15	7-685-851-09	SCREW +BVTT 2X4 (S)	